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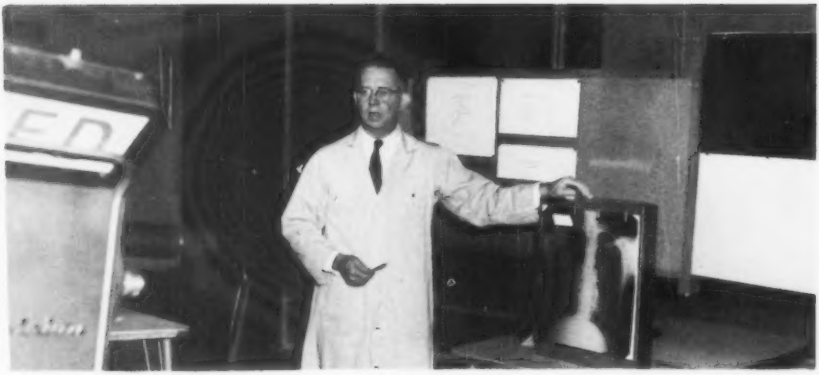

Dr. H. William Harris, associate professor of medicine, University of Utah College of Medicine, presents a clinic for his colleagues on KUED. The clinics are presented weekly. See story on page 42.

On the cover . . .

This montage illustrates some of the many facets of the student-training program at FM Station KRVM, Eugene, Oregon. See story on page 67.

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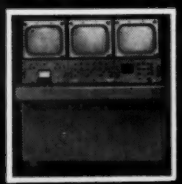

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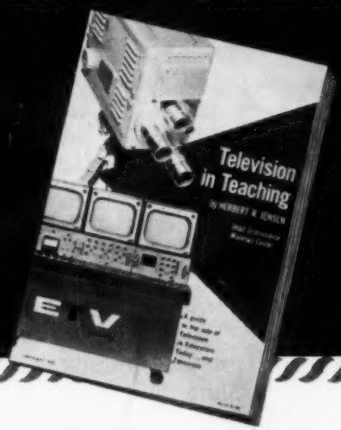

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KTCA-TV Moves To New Building

Studios thought to be among nation's finest

The newest and, in the opinion of many in the field, the best-designed educational television studios ever constructed were occupied by KTCA-TV, St. Paul-Minneapolis ETV station, during the latter weeks of 1960.

The building, containing 280,240 cubic feet is located at the corner of Como and Winston Avenues in St. Paul—on property owned by the Minnesota State Fair, which is precisely in the middle of the Twin City area. The land has been leased to KTCA-TV (at $1 per year) for forty-nine years. Total building costs amounted to $363,000.

Two large studios (60′ x 40′ x 24′ and 40′ x 20′ x 24′), an equivalent space for storage, eight private offices, three large offices, two conference rooms, a crew lounge, a scene and paint shop, three control rooms, a film and tape storage room, an engineer's shop, a dark room, a kinescope room, a VTR room, shower room, three dressing rooms, two custodian's rooms and three small storage rooms are included in the building, as is a garage for the remote truck and two rooms for housing the heating and air-conditioning units.

A microwave tower 140′ in height is located at the rear of the studio building and is used to relay the station's signal to the 652′ KTCA-TV tower which, with the transmitter building, is located approximately one and one-quarter miles north of the studios.

Both studios are so designed that fifty guests can watch each live production from behind sound-proof glass windows. Two overhead doors provide access from the street to the studios for trucks, floats, or other bulky properties. Two large parking lots are adjacent to the building.

Traffic flow for visitors, for supplies, and for executive and production personnel is separately channeled so that no one activity will interfere with any other. Three

live programs can be done simultaneously, if necessary—with one recorded on tape, another by kinescope, and the third broadcast — and each of the productions could be viewed by a separate studio audience.

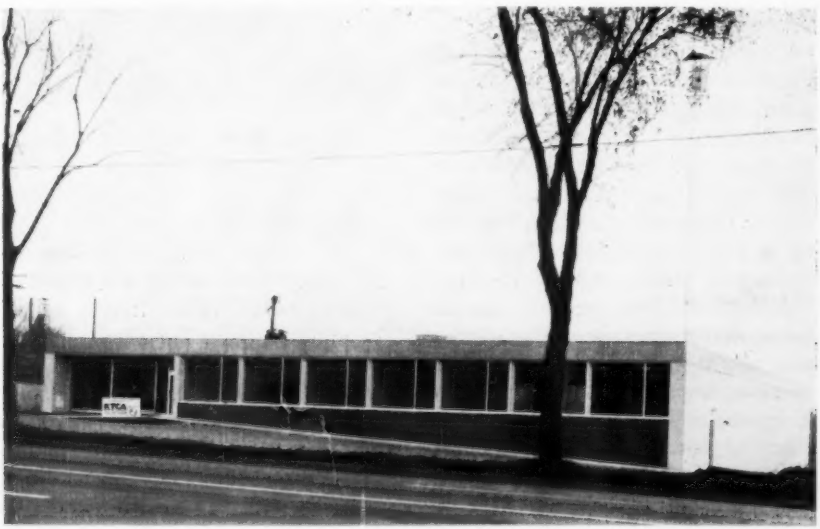
The costs of the station were partly defrayed by a $100,000 grant from the Minnesota Statehood Centennial Commission, which was subsequently ratified by both houses of the Minnesota Legislature. The grant was considered unusual in that it was one of very few such awards ever made to a nongovernmental organization. It was made "in consideration of the great services rendered by KTCA-TV to the people of Minnesota."

Another $143,000 was contributed by some three hundred individuals, corporations and foundations in the Twin City area. The remainder, $120,000, was obtained partly by the use of cash depreciation reserves and partly from earned surplus. The building is completely free from debt.

The cornerstone of the building is of Pantellic marble from the quarry which supplied marble for the Parthenon and was donated by King Paul and Queen Frederica of Greece. The Greek legend on the stone, translated, means "Know Thyself."

Also incorporated into the walls of the studio building is a stone from the ancient wall of Trinity College, Dublin, which was given by the provost and faculty of that institution "in token and sign of the continuity of education."

The new facilities will be used this year by eighteen colleges and universities, thirty-three school districts, twenty-seven private and parochial schools, and more than sixty different voluntary and service organizations.



Gothic Problem in Gotham

Radio WRVR antenna had to be in keeping with church design

By **Lorlyn Thatcher**

Script editor, Riverside Radio WRVR.

Electronics has always been a primary concern of broadcasters, but metropolitan New York's new FM station, WRVR, is probably the only broadcasting operation in the country whose contemporary problems are multiplexed by an architectural style of the twelfth century.

WRVR, awarded a CP last July, is owned and operated by the Riverside Church of New York City. As the most casual observer of western Manhattan's skyline will know, the church is impressively identified by the French Gothic tower rising 392 feet above the Hudson, and housing the 20-ton Bourdon bell, one of the 74 comprising the Laura Spellman Rockefeller Memorial Carillon. At the tower's top is WRVR's antenna.

Station Manager Jack D. Summerfield's normal concern with the most effective type of broadcast antenna has been complicated by more unusual considerations. Utilizing one of New York City's highest sites for a maximum coverage signal meant devising an antenna which would in no way mar the architectural beauty of the tower. The antenna had, therefore, to be concealed and at the same time operate at peak efficiency, without obstruction from the limestone fleur-de-lis crowning the belfry roof.

One proposal placed a single-ring antenna above the tower beacon. The visual effect was fine; some people even remarked that WRVR had brought a halo to Riverside. But the system required a 25-kilowatt transmitter, a factor the station wished to avoid.

The solution to the problem, designed by the Jampro Antenna Company of Sacramento, involves neither wrought iron nor sculptured grotesques, but streamlined steel structures which can be

The Riverside Church, New York City. Station WRVR's problem was how to locate an antenna atop this structure without detracting from the tower's beauty. A specially designed antenna is mounted on the tower roof behind the corner spires. Antenna height is 440 feet above average terrain. Together with a 10 kw Gates transmitter, the Jampro antenna system makes possible superior technical service within a 25-mile radius of the station. The signal can be heard beyond a 50-mile radius, depending upon reception equipment and local conditions. The transmitter is located in the observation lounge on the twentieth floor of the tower. A glass partition allows visitors to view this part of the installation.

viewed only by climbing past the carillon to the observation platform of the tower and up onto the roof. The skewed, four-corner reflector system has been named for the station whose special needs it fulfills: the Jampro Antenna Model RVR-1.

WRVR's transmitter, located in the twentieth-floor observation lounge of Riverside's tower, is the only 10-kilowatt FM transmitter in New York City to operate at maximum effective radiated power of 20,000 watts. Behind a wall of glass, the transmitter is on view for the hundreds of visitors to Riverside.

Riverside Radio's signal on 106.7 mc was first heard Sunday, January 1, 1961, with the 10:45 morning service at Riverside Church. Complementing the broad program policy of Riverside Church, WRVR's broadcasts (initially seven hours daily, Monday through Saturday, and thirteen hours on Sunday) will include lectures, jazz, children's programs, classical and sacred music, drama, interviews, and news.

WRVR is a member of NAEB and NAB. Participating in the station's programing are well-known Morningside Heights institutions. These include Barnard College, Columbia University, the Interchurch Center, International House, Juilliard, Jewish Theological Seminary of America, Union Theological Seminary, Teachers College, and St. Luke's Hospital.

Dissent on ITV

Author questions use of tv in some subject areas

Students at all grade levels who receive part of their daily instruction by television in large classes seem to learn as much as, and in some cases significantly more than, students who receive their instruction by conventional methods in conventional-sized classes.[1]

Are we, because of the monotonous frequency with which statements almost exactly the same as the above appear in the literature, tending to accept the unquestioned benefits that instructional television offers, with less than a critical view?

Might we not attempt to make some distinction between those subject-areas where such benefits outweigh any possible disadvantages, and those where the disadvantages may carry risks so grave that they far outweigh the benefits?

In attempting to do this I have come to the personal conclusion that whereas ITV can be of inestimable value in teaching the "black-and-white" subjects (such as math, the natural and physical sciences, and a speaking knowledge of foreign languages) it carries risks so grave for the humanities or social sciences that, even though only *potentially* dangerous, they far outweigh the benefits, the current qualitative and quantitative crises in education notwithstanding.

With the current rampant reign of rigidity and conformity in our society, and therefore in the curricula which, to a large extent,

By **Dave Berkman**

Acting chairman, r a d i o-television, New York Institute of Technology. He is studying for a doctorate in communications at New York University.

[1] *The National Program in the Use of Television in the Public Schools, A Report on the National Workshop at Chapel Hill, North Carolina, June 15-26, 1959,* (New York, 1959) p. 5.

reflect that society, I, like Caswell, find it difficult

> . . . to view with equanimity a situation in which every pupil throughout a state or the nation in the tenth grade would be taught [the same subject] at precisely the same hour and in the same way.[2]

I believe, with Prof. Kelley, that this "is repugnant to the American ideal,"[3] at least insofar as it extends to those subject areas where there exist different viewpoints and interpretations.[4]

The aura of believability that accrues to a person in the eyes of an impressive youngster, when he is magnified on a 21″ screen, is great.

Kumata states that the acceptance of ITV seems correlated with time spent viewing TV at home, with the highest acceptance at the elementary school ages,[5] when basic attitudes and beliefs are still being internalized.

McLuhan, whose thesis is that the medium greatly affects the perception of the message it carries, states, "The young today learn the language of the new media as they learn English. That is, *they respond totally* to these complex forms . . ."[6] [Author's emphasis].

One fifth-grade teacher notes that when her youngsters were visited by studio teachers, "They displayed emotions similar to those exhibited when meeting a local TV personality."[7]

Thus even such vigorous proponents of ITV as the compilers of the third-year progress report on the Hagerstown project felt compelled to state

> People tend to accept as authoritative what they . . . see on television. Because of this, the studio teacher may come to be considered the "Great Authority." There is also

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[2]Hollis L. Caswell, *A Curriculum Viewpoint on Educational Television.*

[3]Earl C. Kelley, from *The Menace of Mass Media in Education,* a paper presented to Discussion Group 3 at the 12th National Conference on Higher Education, sponsored by the Association for Higher Education, March 4, 1957.

[4]There also seem to exist other, more empirical grounds, to justify the subject limitations I would place on ITV. Dr. Stoddard, for example, would omit English and social studies from those subjects which would include televised instruction, at least at the elementary school level, "until more is known about what type of teaching best fits what kind of learning experiences . . ." [Alexander J. Stoddard, *Schools for Tomorrow: An Educator's Blueprint,* ("The Stoddard Plan") (New York, FAE, 1957), p. 44.] In addition, Holmes' survey of instructional TV research to date, concludes that "In information gain, TV seems to favor the sciences and conventional means seem to favor English, speech and communication." [NAEB Research Fact Sheet, Series I, #83, Presley D. Holmes, *Television Research in the Teaching-Learning Process,* p. 2.]

[5]Hideya Kumata, *Research Results in Educational Television,* a paper presented to the Conference on Educational Television, from *The Proceedings,* Circular #574, (Washington, USDHEW, 1958) p. 37.

[6]Marshall McLuhan, *The Role of Mass Communications in Meeting Today's Problems,* p. 16.

[7]Eloise S. Wright, "A Classroom Teacher Looks at ETV," *NAEB Journal,* Vol. 19, No. 5 (Sept.-Oct. 1960), p. 6.

> a possibility of affecting large number [sic] of students with one's personal biases. Television is such a powerful means of communication that if used in the wrong way, it can emphasize uniformity and submission and bring on the age of "Big Brother is watching you."[8]

But this danger isn't limited only to students; it is also possible that the classroom "teacher may accept the program uncritically because it comes through an authoritative medium."[9]

Such a naive contention as, "So long as we maintain democratic freedom, I do not feel concerned about this possibility. We should use what is good and reject the mediocre or propagandistic,"[10] is really no reply at all. It avoids the questions of who the "we" is, what it is the "we" can do, and most important, that such uses of TV may indeed constitute a major part of the *threat* to democratic freedom — not something that occurs *after* it has been lost.

I am equally dissatisfied by the answer that we will never have a nationwide ITV system because of the states' traditional reluctance to relinquish their control over education, on two counts:

First, NETRC's plan to inaugurate a live, interconnected ETV network by 1968,[11] and Dr. Ivey's recommendation that ". . . ETV although under state control, be engineered so as to encourage articulation with regional and national systems,"[12] do not make the prospects as remote as might at first seem the case.

Second — whether we eventually have 10 regional (such as the Midwest Airborne setup) or 50 different state-wide systems — 10 or 50 teachers, in the social sciences for example, is still not the 50,000 we have now, with their infinite variety of outlooks and perspectives, and among whom are still to be found enough of those rare and provocative teachers to insure that the average student would be exposed to at least one or two of them throughout his school career.

The contention that these are the very teachers who would become the studio teachers so that they would then be available to every student in every grade, I cannot accept either. Whereas such teachers could be "tolerated" in the relative privacy of their own classroom, how many administrators would deliberately select such an instructor to go on TV where he would teach not only tens of thousands in their classrooms, but where he could also be monitored

[8] *Closed Circuit Television Teaching in Washington County 1958-1959* (Hagerstown, Md., Board of Education, 1959) p. 38.

[9] *NAEB Seminar on Instructional Uses of Television and Radio*, held at Purdue University, July 21-25, 1958, (Urbana, Ill., NAEB, 1958), Observations and Conclusions, p. 59.

[10] Leslie P. Greenhill, "Instructional Research, Whence-Whither," Part II, *The TV Educator*, Aug. 1960, No. 13, p. 3.

[11] Edgar Fuller, "An Educator's-Eye View of ETV Networks," *NAEB Journal*, Vol. 19 No. 3, (May-June, 1960), p. 53.

[12] John Ivey, *Television in National Education Policy*, Conference on ETV, p. 80.

daily by the easily offended parents of some extreme political, social, or economic persuasion? (Let me stress, by the way, that it is not the imposition of any such radical persuasions constituting the "personal biases" of a TV teacher that bothers me — I can think of nothing more healthy than a *variety* of these — but rather, that these "personal biases" may tend to be none but those platitudes and shibboleths we all unquestionably accept as "objective truth" in these "moderate" times of ours.)

Thus I think it is safe to say that in those systems where ITV unselectively became an integral part of the curriculum, any possibility that a student might be exposed to such teachers — at least for whatever part of the time was devoted to the TV phase of the lesson — would in most instances be nil.

Nor can I accept the contention, "For everybody's comfort, then, let it be said that master lecturing constitutes quite a minor part of the case for educational television."[13] Certainly any innovation which hopes "to bring the *highest quality of education* to millions of youngsters, in large and small communities alike,"[14] has little to recommend it if it will be content with less than the best. [Author's emphasis] It is, in fact, the potential of introducing such "masterful teaching" that constitutes what seems to me to be the best argument for ITV!

I do, however, derive encouragement from the fact that some who are deeply troubled about the current conformity and low state of civil liberties, are far less troubled about these dangers than I. Among these are Dr. Charles Siepmann, FAE consultant, and one of the most outspoken proponents of ITV, who has long been an active participant in the struggle for civil liberties and until recently was board chairman of the New York Civil Liberties Union. Indeed, NAEB's Harry Skornia sees in ITV the very means to reverse these trends:

> TV may bring back discussion of local issues and *controversy*. We need to teach students to *dissent* intelligently; not adjustment, but maladjustment needs encouragement . . . ETV must reverse this trend.[15]

I must admit my fears about the "Orwellian implications of ITV" may have more of an emotional than a logical basis. But they exist for me as my single most strong feeling about the subject, and I believe this aspect should receive at least some consideration when discussing the role of ITV in the curriculum.

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[13]Charles Siepmann, *TV and Our School Crisis* (New York, Dodd, Mead & Co., 1958), p. 159.

[14]*Midwest Program on Airborne Television Instruction*, (Lafayette, Ind., 1960), p. 5.

[15]Harry Skornia, *NAEB Seminar on Instructional Uses of Television and Radio, op. cit.*, p. 3.

Radio-Television Selected Bibliography

annotated by Eleanor Blum

Journalism and Communications Librarian
University of Illinois

Davis, Desmond. *The Grammar of Television Production.* New York: Macmillan 1960.

Intended to give the newcomer to television the essentials of production. The author, a producer himself, wrote the book under the auspices of the English Guild of Television Producers.

Dunham, Franklin. *Educational Teleguide: References for Education by Television.* Washington: Dept. of Health, Education and Welfare, 1959.

A sourcebook of facts about educational television, including sources where research-study reports may be obtained and abstracts of some of these reports.

Hailey, Arthur. *Close-up: On Writing for Television.* New York: Doubleday, 1960.

A collection of some of the author's TV scripts, including his "Flight into Danger," with a review for and against each.

Mannes, Marya. *Who Owns the Air?* Milwaukee, Wis.: Marquette University Press, 1960.

A pamphlet in which Miss Mannes tells what she considers the major faults and lacks in commercial television.

Murrow, Edward R. *The Responsibilities of Television.* New York: Fund for the Republic, 60 East 42nd St., 1960. (The Press and the People 8 & 9)

Mr. Murrow discusses some of television's limitations and possibilities in the field of documentaries.

Parker, Edwin B. *Increasing the Audience for Educational Television.* Urbana: University of Illinois, Institute of Communications Research, 1960.

An empirical study designed to test the assumption that audience members who find the content of a particular program rewarding are more likely to view later programs in the same series, or similar programs, than are people not so rewarded.

The Relation of the Writer to Television. Santa Barbara, Calif.: Center for the Study of Democratic Institutions, Box 4068, 1960.

A discussion of the limitations and possibilities television offers the writer. Contributors include,

among others, Marya Mannes, Rod Serling, Eric Goldman and Robert Alan Author.

Severeid, Eric and Martin Agronsky. *The Television News Commentator.* New York: Fund for the Republic, 60 East 42nd St., 1960. (The Press and the People 7)

Two well-known television commentators discuss some of the basic problems of news telecasting.

Shayon, Robert. *Television: The Dream and the Reality.* Milwaukee, Wis.: Marquette University Press, 1960.

The author, radio-television critic for the *Saturday Review*, compares television as it now is with television as it might be.

Siller, Bob, Ted White and Hal Terkel. *Television and Radio News.* New York: Macmillan, 1960.

A guide for radio and television news writing for both the veteran and the beginner.

State Legislative Actions and Educational Television. Washington: Joint Council on Educational Television, 1785 Massachusetts Avenue, N. W., 1960.

A 13-page memorandum listing, state by state, the legislative actions which have resulted in direct support for educational television facilities and programming.

Taylor, G. Rattray. *Eye on Research.* London: John Murray, 1960.

A book describing and amplifying the BBC television series, Eye on Research. The author, who is one of the planners of the show, deals with the problems of trying to simplify science for the layman viewer without over-simplifying it.

Television in the Service of International Understanding. Paris: UNESCO, 1960. (Secure through Columbia University Press)

An 18-page final report of the meeting of directors of television programs, held June 29-July 1, 1960.

Thomson, R. J. *Television Crime-Drama: Its Impact on Children and Adolescents.* Melbourne, Australia: F. W. Cheshire, 1959.

An experimental study to determine viewing effects. This is the second of a series of reports on mass communications studies projected by Melbourne University's Department of Audio-Visual Aids.

U. S. Federal Communications Commission. *Responsibility for Broadcast Matter.* Washington: Federal Communications Commission, 1960. (Docket No. 12782)

Interim report by the Office of Network Study.

Westley, Bruce H. and Philip P. Anast. *An Audience for Educational Radio.* Madison: University of Wisconsin Television Laboratory, 600 N. Park St., 1960. (Research Bull. No. 13)

A study of the characteristics and listening tastes of the Madison, Wisconsin, educational radio audience.

Before reading these the reader should answer the following question:

What proportion of ETV programing consists of the image of one person plus the visual devices, graphics, and demonstrations he chooses to use? In other words, how much ETV is no more complex than the "lesson" or "lecture" format? The size of your answer will determine for you the importance of the next two articles. Some estimates have run as high as 90 to 95 per cent. Certainly the majority of live

Self-Directed Television

Instructor, two cameras, and a crew of one can produce better ITV

Many ETV proponents have suggested in the past that educational television need not be bound to the conventions of commercial television — that the purposes of instructional TV are so different that the regular methods and techniques of production need not necessarily apply. A lot of abridged and simplified methods have been tried, but still the now-traditional methods of the commercial TV studio are the prevailing techniques of ETV production. This generally involves two cameras, two cameramen, usually a floor manager, and, if any extensive visuals are to be used, a production assistant to work the animations, change the cards, point to the right place on the map, etc. Sometimes two or more production assistants will be required for these purposes. In the control room there must be a director to coordinate all these elements, an audio operator, and a video operator. Sometimes a switcher is also used. Maximum personnel: nine persons in addition to the lecturer.

Of course these jobs are often combined. The floor manager may do the work of a production assistant, or he may be eliminated entirely and the cameraman cue the performer instead. The director in the control room may perform several functions. At Los Angeles City College in a significant experiment in new technique, the cameramen are eliminated, and the switching function is given over to the teacher himself. One camera covers

Continued on page 11

community ETV station programing will fall into this category. It is safe to say, at the same time, that any ITV "program" (if you can cali part of the curriculum a program) which is not produced in this simple format is a rare exception.

This is neither good nor bad; this is simply educational television at this period in its history. The following articles express two points of view about the role of the ETV director in this kind of production.

Director, ETV

Who needs him?

By **Rudy Bretz**

Head, educational television, University Extension, University of California at Los Angeles.

Example 1: At Los Angeles City College a system is used in which both cameraman and director are eliminated. Three cameras are suspended from the ceiling and fixed — one on the lecturer's podium, one on his easel for visuals, a third on the blackboard. Switching is done by the instructor himself.

Example 2: At the University of Oregon a TV director was given time to audit every lecture of a course which was to be done on television the following season. He then worked with the instructor in planning and preparing the material for the course content.

Example 3: Baseball on television. It has been rightly said that the director and crew of a baseball TV program are as much a part of the televised game as the players down on the field. They must know the game thoroughly, know what to expect in each situation

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Continued from page 12

the chalkboard, a second the table easel, and a third the podium where the teacher stands to deliver the body of his lecture. The fourth camera is tripod mounted and equipped with a remote-controlled zoom lens, available for angle shots of desk-top demonstrations, etc. Sometimes the fourth camera will be specially mounted on a microscope or other device for a particular purpose, or it may be moved into the control room and set up as a film chain in the event films are to be part of the lesson.

In the control room only one technician is used; he rides audio and video controls and, when a film is used, operates the film projector and chain which feeds the film into the circuit. He also operates the remote control zoom lens. Maximum personnel: one person in addition to the lecturer. This is a big jump from the traditional TV studio, and there are many combinations of functions to be found which fall between these limits. Los Angeles City College has reduced the crew requirements to an absolute minimum; additional fixed cameras are substituted for the usual number of crew members. With a crew man costing perhaps $4000 a year and a camera amortizing around $1000 a year and costing possibly $2000 to maintain and operate, a camera for a crew man would seem to be favorable exchange. How do the instructors like the idea of doing their own switching? This seems to be the most successful part of the operation. It requires only that the instructor be aware of his studio monitor at all times. After all, he is doing a TV lecture and nothing that he does will be of any value at all unless it is seen on the TV screen. Once the instructor has learned to be aware of and take responsibility for what the camera is showing, it is only natural that he be given switching control.

What is lacking in the Los Angeles City College method is a flexible camera pickup on a variety of visuals. As in standard studio TV technique, special easel cards in a standard size must be prepared. The four fixed cameras limit visibility to only four fixed locations. Except when the zoom lens is used, the width of scene in each location is also fixed.

The method proposed in this article also utilizes only one crew member, but reduces the number of cameras to two. I believe it to be superior to the Los Angeles City College method in effectiveness and in economy. The results of our first applications of it at UCLA lead us to consider it more effective than the traditional full treatment TV studio production for most instructional television. These are extravagant claims; they cannot be substantiated because the method has not yet been given a thorough test. But it would appear that in the production and presentation of the simple lecture-demonstration, where only one performer is involved and limited studio space is used, at least in this area it is possible that the

continued on page 16

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so that they can make everything that happens *visible* to the viewers at home. Not only is complete mastery of the TV technique necessary, but a thorough understanding of the program content is also required. Baseball is an extreme example, since split seconds of confusion or indecision on the director's part can be utterly destructive to the program.

Educational television, however, can also be well or poorly done for the same reasons. The ETV director must have similar skills of operation, and must understand what the teacher is trying to put across and how he is trying to teach it. By the way he uses the medium, he is teaching too, whether he realizes it or not.

Examples 4 and 5: Too much "technique of medium" can be a dangerous thing.

A closed-circuit TV operation in the high school in Winnetka, Illinois, utilized high school boys as camera crew. Before regular TV classes were begun the students underwent a period of training. They were not trained in "TV techniques," however, but in education. They were made aware, first of all, of what the teacher was trying to do. If the development of skill in utilizing the TV equipment was not slighted, this was probably a valid approach. It is indeed possible that consciousness of TV techniques alone in director or crew can obstruct the effectiveness of television teaching.

I was once consultant at a leading educational TV station, watching shows and criticising them for the staff, when, on a children's show, the director had brought a fire engine to the studio and interviewed the fire chief about its operation. There was a period of minutes at one point while the chief described a pumping apparatus on the side of the truck which was too far away to be seen. The director was asked why he had not dollied the camera in to a closer shot. "Well, these dollies that we have," he explained, "are very crude and the movement would have been quite bumpy." His concern for good surface technique had prevented him from making the subject *visible*. The result (of which he was unaware at the time) was that the entire two or three minutes of description was a total loss, no one learned anything, and audience interest dropped to the point of boredom.

* * *

The TV director's responsibility is to work with the performer, the TV teacher, and to make clearly *visible* at the right time and without distracting elements, the visual materials which are necessary to the lesson. If this is not done, the TV technique is poor, since it is not adapted to the content. A rough and bumpy dolly shot might have distracted from a dramatic program, calling attention to the operation of the camera and away from the dramatic illusion, and it might indeed have been a proper

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new method will turn out to be "the answer."

In the new method the two cameras are set up as follows: The first camera is operated by a cameraman. It is of the studio type, equipped with a good electronic viewfinder, a camera focus knob, and may also have a turret for more than one lens, although this is not at all important. It will be equipped with a flexible three-caster dolly with wheels of over three inches in diameter. It may also have a method of easy adjustment for camera height, although this, too, is not strictly necessary. It will also be equipped with a zoom lens for alternate use when dollying is not practical. This will be a lens of the manual type with an adaptation for lens-focus control from the back of the camera. The purposes of this camera will be (1) following the instructor and covering his actions wherever he may want to go, (2) covering in closer shot any large demonstrations he may wish to do, table-top demonstrations, large visuals, and the like.

The second camera is fixed and unattended. It is a small camera of the industrial type without viewfinder or focus controls. It has no pan or tilt adjustments. It is positioned directly above the instructor's podium or demonstration table. This is called the "overhead TV" camera. It is equipped with a zoom lens, which is controlled by the instructor. Attached to the podium is a small switch with a simple knob or toggle movement, with which the instructor can select either the overhead or the studio camera. A master monitor, attached to the studio camera, will always show the instructor what his students are viewing. In some cases a second master monitor may be placed at some convenient location. It is important that these be *master* monitors, so the instructor is constantly reminded of what is actually on the line.

The extraordinary value of the overhead TV camera must be described at this point. This is the key to the proposed method and must be seen in operation to be actually appreciated. It is not only an improvement over all the commonly used types of classroom visual aids (except film) but combines the functions of them all. Another extravagant claim. But consider the advantages: You can use photographs, or any other graphic materials; you can write and draw in normal writing and drawing size on a convenient horizontal surface in front of you; you can show objects and manipulate cut-outs in the fashion of the flannelboard. You don't need to make up slides, or prepare visuals in any particular size for the TV camera. Because a zoom lens is in use, you can use pictures in a wide range of sizes. A useful range is from a width of twelve inches down to a width of two and a half inches. Even more important than this, you can show a large picture in its entirety and then zoom in for the analysis of detail, returning for re-establishment at any time.

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decision in such a case to refrain from dollying the camera. But in the education program, where no dramatic illusion was involved, a moment of camera-consciousness would have destroyed nothing. What is good TV technique in one situation may not be good technique in another and it is only in relation to content that technique can be judged.

What value, then, is the TV director in educational television? Why do we need a director and crew at all? Is it not sufficient to fasten cameras to the classroom ceiling and let the performer do his own switching? And if only one camera is in use and there is no need for anyone in a control room to call shots or punch buttons—why have a director at all?

I was recently privileged to hear George Stevens, director of *The Diary of Anne Frank* and other leading Hollywood films, discuss informally his method of direction. It then occurred to me that what would apply to a director of dramatic films might also apply to a director of educational TV programs.

Stevens asserted that the creative contributions in a dramatic scene should come from the actor — that the director should watch, and guide when necessary; coordinate, but never tell the actor what to say or do. Ted Post tells of visiting on the Stevens set and seeing the director sitting back, hands clasped behind his head, watching the actors as they worked out the action of a scene, saying nothing, simply watching as the actors went over and over the scene. And this went on for three days. It should be explained here that only a director with unlimited budget and unlimited shooting time can afford to work in this manner. TV directors and directors of the low-budget TV films must preplan everything themselves, stage it for the actor, and get on with the show.

But Post would probably direct *Gunsmoke* by Stevens' method if he had unlimited time. Why? What was Stevens about during those three days of watching? Stevens says his responsibility is to be the audience. He must put himself in the place of the man in the movie theater and imagine his response. As long as what the actors are developing is valid there is no need to interfere. If there is doubt in an actor's mind, the director is there to be the response and to reassure or correct, to *select* the actor's effective moments and to *reject* the invalid. Together the actor-director team creates something which is for the actor authentic, and for the director, effective. Each depends upon the other.

In drawing an analogy between George Stevens at MGM and Joseph Sturdley, TV director for the county school system, we must remember that Stevens' concern with technique is limited mainly to the performer. We must add the head cameraman and the chief

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"Panning and tilting" movements are achieved by sliding the picture underneath the camera. The lecturer can point to portions of the picture with his finger, or if he is zoomed in so close that the finger is gigantic on the screen, a pencil can be used.

The overhead TV camera as a visual aid has been in use at UCLA for less than a year, at the time of this writing. During the spring semester it was used in three courses. In the fall eighteen instructors used it constantly in their classroom presentations. A training period of about ten minutes suffices at the start, to learn the coordination involved and the range of possibilities in using the overhead camera. When the viewfinder camera and switch are added it takes about an hour for the average person to learn the coordination required. With increased use, naturally, anyone will exhibit steadily greater effectiveness.

One of the most practical aspects of this production method is that rehearsal for purposes of coordination is eliminated. It may still be necessary for the instructor to try out a new demonstration on camera to determine the best background, the best weight of pencil to use, the best angle at which to hold an object—but this is reduced to an absolute minimum, since the instructor is actually watching all this at the time he gives the lecture, and can make his final improvements at that time. But when more than one person must coordinate between the functions of talking about a thing and manipulating it, then coordination rehearsal is necessary. Very little of the time involved in most conventional TV rehearsals constitutes rehearsal for the performer. Most of the time is really rehearsal for the studio crew.

The cameraman, being the only crew member involved, must then handle the functions of audio and video operation as well. Since in this type of production a lavaliere microphone is used, the audio need only be set to a predetermined level and left there. In the rare event that special audio effects are part of the lecture presentation and a second microphone must be used, it is easily possible that the cameraman could still handle the sound mixing if a small sound console is placed somewhere below the camera on the same dolly. A type of camera chain is used on which the important video adjustments—beam, gain, etc.—appear on the camera. As for the second camera, industrial cameras are now being made with many features which simplify video operation, and it is not necessary for an operator to ride video on the overhead camera once the proper adjustment has been made.

In our own application the method has particular appeal because it does not require a studio and control room. All controls are necessarily in the room with the instructor, so a control room is not needed, and since vidicon tubes are now practically the equal of the conventional image orthicon in

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film editor, the assistant director on the Stevens' set, his script girl, unit manager, and a few other creative persons and lump them all together before we can really make a comparison with Joe Sturdley. But let's take only one aspect of Mr. Sturdley's contribution—his relationship with the performer—and see how that compares with Stevens'.

Joe watches a rehearsal of the TV lesson. He doesn't presume to tell the TV teacher what to teach, or how. But he puts himself in the place of the TV student and provides the response. He insists on understanding every point.

He notes when a point is unclear and suggests a way to make it so. The teacher moves too rapidly from step to step and Joe suggests a step in between. He suggests a movement of an object here, a partial demonstration there. "Instead of just holding up that oxygen mask, put it to your face the way you did it the first time so we can see more clearly what it is" and "How about putting those gears together onto the model, one by one? You might do that while you are talking about the transfer of energy from one to another, and have the model all put together by the time the explanation is through." Or he might say, "Leave off handling the model boat after you have finished talking about the design of paddle wheels; it will distract us from understanding the concept you are giving about the role of transportation. We should be looking at *you* in order for that to sink in." Naturally the more experienced with the medium the TV teacher is, the less the director will find to contribute, just as George Stevens, with his choice of the top professional actors in Hollywood, can sit for three days and watch the scene take form.

Of the many television teachers who have written about their experiences with the medium, very few have felt the contribution made by their directors or producers important enough to mention. Dr. Huston Smith of Washington University in St. Louis is a notable exception. After seventeen weeks of a series called "The Religions of Man," Dr. Smith wrote, "Somehow the idea is abroad that all that is needed for good (educational) television is a good television teacher . . . . it is not true.

"One of the reasons (my course) was good over television was because it was not the same course as was given in the classroom . . . I could welcome my director as a full partner in my course because his educational concerns, standards and integrity were fully equal to my own. Indeed, no one, with the possible exception of my wife and one or two graduate professors, has worked so hard to force me to pound my ideas into clarity, economy, and relevance. Not once was there a difference between us in what we were trying to do. It was simply a matter of integrating as

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sensitivity (a point which has not been publicized very much) no special additional studio lighting is required. A well-lighted classroom and lenses which will open up to f2.8 or beyond is all that is needed. Naturally we don't have key, fill, and back light with all the sparkle of a network TV production, but we have a good clear picture which makes the classroom look like a classroom, and we can see all the visuals the instructor uses and hear everything he says. More than this would be theater art — of great value in general-interest ETV broadcasting, but not necessarily needed for effective teaching.

AN EXAMPLE

Imagine yourself now, if you will, an instructor of a future course in, say, anthropology, the lectures of which are being given via TV. You have prepared your lecture and wish to use a number of visual aids.

To begin with, you will need a map, since you are talking about American prehistory and will need to locate the sites where definite dates have been established. You want to associate the dates with the sites. Then you want to use a published report of the excavation at one of the local sites, containing pictures of the burials which were uncovered. At this point you will need to draw a diagram to show the difference in burial methods which distinguish early and later cultures. Finally you have several actual artifacts, each smaller than the palm of your hand, which indicate the development of stone chipping techniques. Bringing this armload of books, photos, objects, etc., you arrive at the classroom where you will deliver the lecture.

You stand at the podium and try these all out on the overhead camera, experimenting with the best background for the artifacts, finally deciding to simply hold them in the palm of one hand while turning them with the other. You check your photographs to see if the important detail can be seen. You tape your outline down to the top of the podium, off to the side where it will not be covered with the visuals you are using, yet close enough for ready reference. You check the large built-in stop watch which reads in terms of minutes remaining, and set it for the fifty minutes your lecture is to run. The cameraman gives you the cue to start.

On the monitor attached to the camera in front of you, you see a smiling face. If it isn't smiling you contrive to make it so. You imagine you are addressing the last class you taught—after you got to know them a little and felt you could relax and sit on the front of the demonstration table. You leave the podium and walk around in front where you do sit on the front of the table. The viewfinder camera follows you around, pulls back a little as you approach, and then steadies as you sit. You observe your position, half sitting with your arms folded. Not bad. But now you have to refer to your

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completely as possible my knowledge of the subject with his astonishing feel for what constitutes communication and effective teaching over television.

"That the latter in no sense conflicts with the academic virtues is indicated in a recent comment by one of the greatest scientists on our faculty, one of the few botanists in the country to be elected to the National Academy of Science. Having appeared on the TV series *Walker In The City* he said of the director, 'He doesn't know a radish from a tulip, but if I ever have to do anything on television again, he's the first man I would run to for help.'"

It should be noted that even in Dr. Smith's sincere report the director of the botanical program (Dick Hartzell) was anonymous, while the director with whom Dr. Smith worked on so many programs and about whom he was so laudatory (Mayo Simon) was mentioned only in a footnote when the article first appeared in the *Educational Record,* and even this footnote was dropped when the article was subsequently reprinted in the *Education Digest.*

One of the biggest advantages of the TV lesson over the lesson given in the classroom is that the TV lesson can have the benefit of direction. The typical classroom lesson never has a rehearsal—except that it was given last semester and the semester before that—and it certainly never had the advantage of the immediate critical response of a director. Only very rarely in academic teaching does more than one person prepare a lesson, and the idea of rehearsing a lecture before a colleague to get his criticism and help would appear just a little short of ridiculous to most instructors.

Many ETV lessons, and many complex educational programs go on the air without benefit of the kind of directing I have described. ETV stations are usually understaffed and cannot assign a director to work with a teacher through the preparation of a series of programs. Commercial stations are used to putting on local live programs without camera rehearsal, leaving the preparation of the program generally in the hands of the talent involved. But it is not ever thus.

Experimentation in educational television has passed the stage where the same course was given simultaneously in a classroom and on TV, and the achievement of the two groups of students compared. Over a hundred and fifty major studies have shown no significant differences. Today's developments are concerned more with "How Can We Use TV Best." In many closed-circuit situations, directors will not be appropriate. Cameramen will be the experts in TV techniques; teachers will watch one or more monitors as they teach and switch from one camera to another at will.

Probably in the broadcast program, however, the contribution of

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map, and write out a couple of new words. You don't go to the wall behind you, as you might if you were in a conventional classroom, or TV studio for that matter — you go to your podium where the overhead TV camera is in readiness. Explaining what you are doing you unfold the map and lay it out on the podium. The transmitted picture now includes the overhead camera and you are seen as you reach for the switch to put it on the line. Then the monitor on the camera in front of you shows a map. It is the wrong area of the map, and everything is much too small to be seen, but you move the map around until the proper area is in the center and feeling under the table with your foot you find the double acting pedal (something like the old pump organ pedal) and pushing it forward, you zoom the lens in to a closer shot. You want to emphasize certain features on the the map by drawing over them with a heavy pencil. But this is a library map, and you mustn't deface it. A sheet of acetate is handy, and you simply lay this over the area and with a grease pencil draw in freely whatever features you wish. Now you are finished with the map and you take it away. Suddenly the monitor you have been watching shows a close-up of the wood grain of the podium. You reach for the camera switch and see a waist shot of yourself replace the empty screen. After making a couple of points purely verbally, you need to show some diagrams and photographs from the archeological survey report you have brought with you. The report is on the feeding table to the right of the podium (the map has already found its way to the receiving table at the left), and there are two or three page markers sticking out of the edge of the volume. You open it to one of these and lay it open on the podium. A touch of the switch and you are looking at an extreme close-up of a very small portion of text. So great is the enlargement, with the lens left in the zoomed-in position, that you can actually read the type, although only a portion of a full type line can be seen. Heel pressure this time on the pedal and the lens zooms slowly out to show the entire book. You leaf back to the title page, zoom in again on the author's name, push the book away from you so it slides up the screen and the date becomes visible at the bottom of the page, then zoom back again as you turn to the page you wish to show.

You need to refer again to the map with which you began, and you simply put it once more under the camera and adjust the zoom lens. You want, at this point, to show the artifacts you have brought, so you place a hammerstone under the camera. Zoomed up full, it more than fills the screen and you watch the monitor as you turn it in such a way that the shape of the flaking is most visible.

The above narrative describes a presentation which falls short of being "slick and professional";

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the director will be increasingly recognized. As an associate or partner to the TV teacher he will affect both the content and the form of the ETV presentation. Policy should place him neither above nor below the TV teacher in authority. The two must work together in mutual respect, just as Dr. Smith and Mr. Simon did. It is through the cooperative and constructive work of teams such as this that educational TV broadcasting will truly come of age.

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there are moments when there is nothing on the screen, or what is there is too large or too small to have meaning. An instructor quickly learns, however, to zoom his overhead camera wide or to switch to the front camera, before he changes materials. But it is important to note how very little these momentary production crudities affect the function of instruction. We have seen instructors operate most effectively the first time they have used the equipment. This is the area where traditional TV thinking keeps us from trying anything simple enough. We are afraid of production crudities. We hesitate to dolly the camera if the floor is bumpy, and fail to show close-ups of essential visuals. We wait for the speaker to end a sentence so we can cut on a phrase, and leave the wrong shot on the screen until we do. It hardly seems possible that TV, that newborn medium about which a lot of people are still saying "It's in its formative stages," "It's so new there aren't any experts," is really an old man of twenty-one now, kind of set in his ways — ways which haven't changed too much since the first few years — ways which were developed for the play-illusion, presentational, entertainment production.

PRACTICAL ASPECTS

The fact that the overhead TV camera I describe can be one of the industrial models without viewfinder makes this second camera most inexpensive. In the cost list in Figure 1, maximum and minimum figures have been suggested. A variety of equipment is adaptable for the purpose, and a school might decide in terms of a more expensive item in one category and a less expensive item in another. It is most likely, however, that whatever total cost is arrived at, it will not only lie between the extremes shown, but will fall considerably closer to $5,000 than $14,000.

Figure 2 is a diagram of the wires and cables necessary for the proposed TV production method. The cameraman is called "TV Specialist" because he has many

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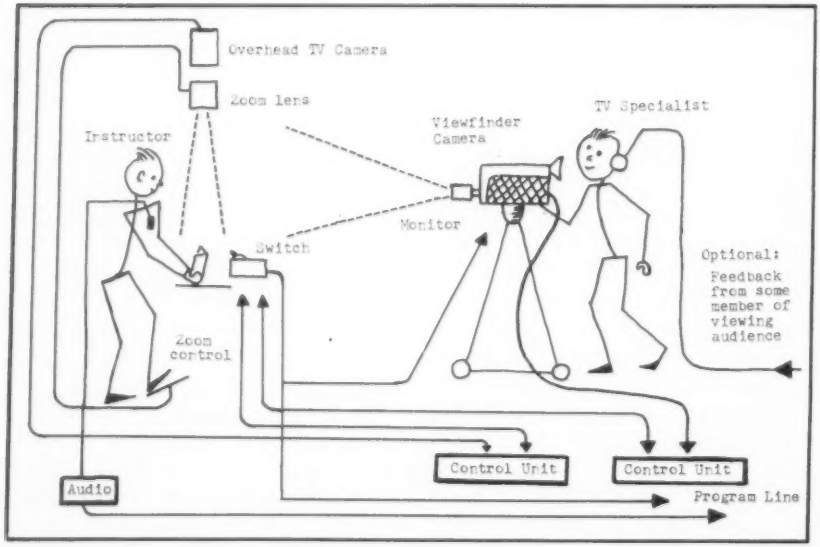
BASIC ESSENTIALS	Minimum	Maximum
Viewfinder TV camera	$ 3,000	$ 7,500
Tripod and dolly	250	1,000
One-inch lens	50	75
*Eight-inch monitor	100	350
*Mounting for camera	30	60
Overhead TV camera	600	3,000
Zoom lens (manual or remote-controlled)	340	2,000
Foot control (for remote-controlled zoom lens)	----	50
Switch	50	100
Stand for overhead TV camera	50	300
Total	**$ 4,470**	**$14,435**
DESIRABLE ADDITIONS		
Zoom lens for viewfinder camera	$ 350	$ 350
Light pedestal to replace tripod and dolly	Add: 300	----
Six-inch lens for large close-ups with viewfinder camera	100	100
Portable lights (4 R-40's)	60	100
Total	**$ 5,280**	**$14,985**

Astute shopping for used equipment will easily reduce these items by about 50 per cent. Of course, appreciable savings can be made in all the items that are bought on the secondhand market.

*See **NAEB Journal**, March-April 1960, p. 35.

Figure 1

Figure 2



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other functions. He will (1) haul the equipment to the specified classroom, (2) set it all up and get a picture, (3) make video and audio adjustments when necessary, (4) operate camera, (5) break down equipment, (6) haul to next location. He will take responsibility for a satisfactory communication. It is his job to see that whatever the instructor shows, says, and does is clearly perceptible to the viewer. To this end he is equipped with a headset over which he can hear from some selected member of the audience how it is all coming across.

The reader has just encountered two articles, each by the same author, advocating apparently opposite viewpoints. In the first he says the ETV director is a much needed and a highly underrated man, and that what we need is more and better direction in educational television. In the second he suggests that most of ETV as it is done today could be done better without a director at all. These two points of view may not be entirely incompatible. This reviewer has always been convinced of the author's sanity, so the next few pages will attempt to fathom his thinking and reconcile by means of a synthesis, the thesis and antithesis he has set down.

In the first place, a growing distinction is being made today between straight teaching ("ITV") and general interest, cultural, informal education which is what most broadcasters mean primarily when they use the term "ETV." The term "ETV" in the past has included both kinds of activity. The content of the two kinds of television can be distinguished by the terms "lesson" or "lecture" for the ITV transmission, and "program" for the general interest, general audience type.

If up to 90 per cent of ETV station programing is of the lecture type, as those of us who have been visiting around recently are prepared to admit, then we must conclude that the self-directed production

method is something for the broadcasting station just as much as it is for closed-circuit use.

But Dr. Huston Smith's program was a straight lecture series, and the author presents it as Exhibit A in the case for the ETV director. Would he argue that "The Religions of Man" would have been a better series if Dr. Smith had switched his own cameras and handled his own zoom lens on his visuals?

Knowing the author's thinking, let me reconcile this conflict. Dr. Smith had a director in the full sense of the word—a man he could accept as a "full partner" in his teaching of the course. Why is this not more common? Even if he is capable of assuming full partnership in presenting a TV course, the average ETV director rarely has enough time to function even as an assistant in the preparation of the content. The general pattern is that the director does not enter the picture until the program is rehearsed (if indeed it is rehearsed at all) and more commonly, not until it actually goes on the air. Under these conditions, I think we can conclude, the author is saying the director is less than useless. The lecturer, if capable and trained in the techniques involved, can do a better job switching and handling the camera himself.

True directing is involved with content. The average TV director whose main contribution is to put the right camera on the right subject and switch it on the line at the right time (hopefully) is not the ETV director that the author is describing. Either "programs" or lectures may be directed. In the production of a "program" the director should be the key man, bearing major content responsibility. In the case of the lecture or lesson program, unless he can take part in content preparation, he should be eliminated.

This idea is going to take quite some selling. It would have shocked the author himself a few years

ago; I am sure he would have quickly rejected it. What about production standards? professional quality? — The answer to this is that a lot of ITV production is honoring the wrong set of standards.

The correct standards stem from the educational purpose of the lecture. By distinguishing it from the program, we can make it easier to set aside artistic elements normally contributed by a director: dramatic effectiveness, smoothness, build-up, tempo, suspense — all the things which help to keep an audience interested in a program. Instead we substitute the educational standards such as clarity of expression, visibility of image, interest of presentation — and the communication standards such as intelligibility of message, and lack of "noise" (meaning interference or distraction).

In practical terms we mean, for example, the cameras are handled and switched so that:

1. Each thing being discussed is seen *while* it is being discussed. The picture is on the line at the start of the discussion, not before, and does not remain after the discussion is complete.
2. The shot is close enough that the important details are clearly visible.
3. The shot is not so close, or not held close so long that relationships are lost.
4. The shot does not contain elements extraneous to the discussion which could cause distraction.

This is all there is to the big complex of mysterious television production techniques where the simple lecture or lesson is concerned. The rest is content. *What* you say and *what* you show, *how* you say it, and *how* you show it makes all the difference, and this is rarely within the province of the ETV director today. Either it should be, or the director should be eliminated. Either he is involved in *both* content and form, or we can do better with a self-directed system, where content and form are controlled by the performer himself. —*R. B.*

Frame and Focus

with Vernon Bronson

It is our thesis that educational broadcasting is a distinct profession. Its members, in whatever branch, should be concerned with the development of its unique contributions to education. Such development can best be accomplished through the development of the members themselves, and this in turn depends, in the main, upon the establishment of a professional discipline, from which will emanate a set of standards and a body of criteria. Only in this way can the profession achieve the authority necessary for continuing development and effective rapport with the total educational community.

This is not a new idea, nor a new-felt need. We have been slowly moving in this direction for some time; but it is becoming increasingly urgent that the authority of professional standards be achieved as rapidly as possible. And we are not alone in recognizing this need. The widening scope of human knowledge, the proliferation of the arts and skills, and the tenuous paralleling of many efforts have all worked to force other areas of education and communication into a recognition of the need for disciplines and standards.

At the 10th annual International Design Conference in Aspen, Colorado. C. N. Parkinson, recent visiting Miller Professor at the University of Illinois and author of "Parkinson's Law," speaking to the world's greatest body of designers, had this to say on the subject, in part:

". . . The one thing we do not lack is opportunity. But are we in a position to seize the opportunities when they arise? Do we have the prestige? Will people heed our advice? Are we high enough in the organization to make our view heard? To all of these questions the answer is emphatically, NO! As things are, our status is relatively low, our prestige uncertain and our advice too often rejected. Why? Because of a lack of discipline among ourselves . . . . On one hand you have the claim of professional discipline. On the other hand, you have the claims of the individual artist. The choice lies before you—the likelihood of being listened to as against the artist's freedom to express himself. . . . . My advice for what it is worth is to move rapidly toward the establishment of a professional discipline."

The American Association of

School Administrators has spent much money and time for several years on the recognized need for discipline and standards in school administration. Many of its efforts are now bent toward upgrading the profession, and several major standards of preparation and performance have been adopted. At the national conference of the A. A. S. A. this year, Dr. Hollis A. Moore, Jr., executive secretary of the Committee for the Advancement of School Administration, said that one of the characteristics that distinguishes a profession from a vocation is "an enforceable code of ethics with sanctions for carrying out its provisions without regard to risk of suit by disenfranchised members and without being sentimental about the lovable, but incompetent colleagues whom we protect by the erection of tenure laws and traditions."

There are many other groups in this general field struggling toward a recognized professionalism, but the resistance of mediocrity and selfishness is greater in some than in others. In all cases, though, the first efforts are to understand the nature of professionalism and reconcile it to the work at hand. Whitehead once said, "The term profession means a vocation whose activities are subjected to theoretical analysis, and are modified by theoretical conclusions . . . . Thus foresight based upon theory, and theory based upon the understanding of the nature of things, are essential to a profession . . . . Perhaps the most important function of these institutions is the supervision of standards of individual competence and of professional practice." It has been remarked that with an individual, professionalism goes even further than this. A professional membership commands the major portion of one's identity.

All of the imperatives of professionalism which impinge upon these other groups press with equal or greater force upon the NAEB. And no group has a greater claim to the basic requirements of a professional discipline. The need is for us, individually and collectively, to realize our potential, and establish a procedure. At our meeting in Biloxi, Mississippi, in 1951, Harold Lasswell talked to us about this. He said, among other things, ". . . We have the rudiments of a specialized group of experts on the media who are engaged in the task of clarifying for one another and for the nation how the instruments of communication can be used to serve the public interest. In a word we have the beginnings of a profession, and I hope that progress in this direction will be speeded up to fit the needs of the hour . . . . How do you develop a profession? It develops as people who perform specialized operations begin to develop elaborate theories about what they do. Also many of them become alert to the aggregate impact on society of what they do and begin to feel that they themselves should take responsibility for deciding the extent to which

the skill benefits society in concrete situations. Hence they evolve standards of professional conduct."

The leadership of the NAEB and your professional development committee are alert to the needs of the times and to our responsibility in this direction; but the committee can move only as rapidly as the concern and the will of the membership will allow it. You are the membership. Think about it. The quality of your thought will reflect the portion of your identity with our profession.

Letters to the Editor

November-December Issue

We have read your editorial entitled "The Limitations of Teaching Machines." . . . We are disturbed by your paragraph that reads in part, "Perhaps some teachers have heard extravagant claims as to what the teaching machines can do. This is not surprising. The equipment salesman is anxious to make a sale."

We believe that the last statement is not quite factual. Responsible elements in the electronic industry have been steadfast in their insistence that proper programing must come first before we, the manufacturers, can even attempt to build the "hardware" for a teaching machine. We have continually worked in the closest way with educators to develop materials simultaneously with equipment in order that taxpayers' money might be wisely invested in good educational tools and materials, rather than foolishly spent on novelties and electronic gadgetry. We regretfully admit that there are some individuals making extravagant claims but we hasten to reassure you that they are not speaking for the firms whose interests are in serving the school market now and in the years to come.

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[When I cautioned educators about "extravagant claims," I was trying to warn them that they should study carefully what a given machine could do, rather than to depend solely upon advertising material or the claims of salesmen . . . . I have no doubt but what responsible manufacturers such as your own will present no problem to the educator. They realize that their best hopes for the future will result from a well-built machine which has been programed by competent curriculum specialists. Successful experience with such machines will ensure growth in the use of these machines as other educators learn of the experience of early users. —TRACY F. TYLER]

Oops!

In the "Salute to Industrial Associates" on page 69 of the January-February, 1961, issue of the *Journal*, the name of Industrial Associate No. 8 is misspelled. It should read as follows: Educational Electronics Division, Thompson Ramo Wooldridge Inc. (formerly Page Television Division).

We Need Solutions — Not Problems

a book review by Harry J. Skornia

Associate Professor of Radio and Television
University of Illinois

Mass Communications, second edition, edited by Wilbur Schramm. Urbana: University of Illinois Press, 1960. 694 pages.

Ten years ago, when the first edition of this work appeared, it was virtually unique. This second edition, revised and brought up to date, still meets a need. But with the recent proliferation of anthologies of "readings" in the mass media, the need it meets is more as a reference work than for the sort of careful study its earlier version invited. The various tables on everything from retail sales of TV sets to the age at which children begin their role as TV consumers (37% at age 3; 65% at age 4; 82% at age 5; 91% at age 6), added to the solid scholarship which characterizes the selections, make this still one of the most solidly useful volumes on the market.

Several of the older articles have been dropped, several new ones (Seldes, Adorno, Crawford, and others) added, and one (by Wilbur Schramm himself) has been written especially for this edition.

There is no need here to summarize Gilbert Seldes' definition of the *Public Arts* as contained in the book of that title, from which the chapter of his, here given, was selected.

Neither is there time to adequately discuss Nelson A. Crawford's "Endowed, Government-Owned, or Responsible Newspapers?" or Dr. Schramm's own chapter, "Who is Responsible for the Quality of Mass Communications?"

The dilemma of advertising-supported mass media is perhaps as clearly posed in "How a Television Commercial is Made" as anywhere. Reprinted from the General Electric *Review*, this chapter outlines the effort, budget, and talent (eight-man team) which goes into the three minutes of commercial on the

GE program. "And when you get right down to it, the commercial is the reason for the whole enterprise." The article points out that "Each of the 33-odd million viewers paid nothing for this entertainment, except a few pennies worth of depreciation on his TV set and a tiny fraction of the month's power bill." The need to reconcile concepts like this with tables (pp. 292-295) showing some 50 million families spending $10 billion—or some $200 per year per family—on TV, reveals the variety of materials contained in this volume, with no effort to reconcile their contradictions.

As one who has read most of the mass media readings of the last few years, I'm inclined to think we've had about enough of them in this form. We now have enough evidence that we have a problem. How, now, about some solutions? It is there that this volume — like most others — is of little help. Seldes, Crawford, Schramm, and all the others gingerly circle the problem. They all end up considering government control. All back away, and leave "the problem" to "the media and the public."

It is all very well to leave the solution to "public education." But it is my judgment that it is unrealistic to expect either the public or the industry itself to take the initiative required. There is really no such thing as freedom from regulation or freedom from censorship.

In the media area, and in the political area, as in science, there is no such thing as a vacuum. Someone or something always occupies such "space."

At present, therefore, it is the industry — a combination of advertising and broadcast pressures — which censors and regulates and interprets the "will of the people." And there is some indication that these pressures, though they constitute no plot and no evil intentions, are in many respects neither wholly in the public interest nor as conducive to those freedoms we now need to be exercising as they should be. The public's voice, and channel, in such cases, IS government. They are not something different in this sense. In a democracy, at least, they should in spirit represent the same attitudes. Regulatory commissions are *supposed* to represent the *public*. There were expected never to be more than TWO parties to regulation: the industry and the public (acting through the regulatory agency). That the public has somehow been squeezed out of the bed — and now is referred to by such agencies as a third party — with the industries referred to often by spokesmen of the regulatory agencies as "we" or "our clients" shows how far we have come from the concept originally intended by the Congress. It reminds one of the relative status of "wife" and "mistress" in certain senses. It also reveals the need for drastic overhaul of the whole regulatory situation. This can come only through federal government initiative.

I predict that the new administration of the U. S. will take such initiative — principally because it

must. Someone must bell the cat. And I am convinced that this can be done by fair and firm executive action at the regulatory and structural levels — setting standards without this constituting censorship or the violation of essential freedoms. Certainly what we've had so far has in some senses been *no* leadership.

In considering what might be done along this line, I feel the problem, and our predicament, requires much more positive and constructive steps, proposals, and efforts than are anywhere suggested in this volume. As briefing for those who wish to share in the effort needed, this book will be useful.

We *do* need courses in the media. We *do* need greater responsibility on the part of media operators. We *do* need to realize their problems. We do need a better informed public — as this volume tells us. But even more, we need a program of action. Considering the date in history where we now are, I would have liked to see more emphasis on that aspect of the problem of mass communications in this volume.

Just over four months after the contract was signed in London for Nigeria's WNTV, ground was broken, the building erected and the station was on the air.

Television Comes to Africa

Author describes new Nigerian tv

By **George L. Arms**

Consultant to the Government of Nigeria in the development of TV there. Formerly operations manager, KETC, St. Louis.

Television came to Africa on October 31, 1959. WNTV, representing the Western Region Radiovision service, began transmission from Ibadan, capital of the Western Region, just over four months after the contracts outlining the terms of the establishment were signed in Ibadan between representatives of the Government of Western Nigeria and Overseas Rediffusion Limited. Each partner provided half of the capital required.

The opening ceremony for the first television series in Africa was a truly historic occasion. It was performed by the Premier of the Western Region at that time, Chief Chafami Awolowo, and attended by 600 distinguished members of the community. Chief Awolowo emphasized that the principal objective of his Government in joining hands to create this service was the desire to provide a self-supporting and powerful educational, entertaining, and advertising medium for the Region.

The station is housed in a pleasant building under the crest of the low sweep of hills surrounding Ibadan, a city of more than half a million people. The building is sturdily constructed of cement blocks faced with Nigerian mahogany in the open sort of construction indigenous to the area. The technical equipment and transmitters were installed by the Marconi Company.

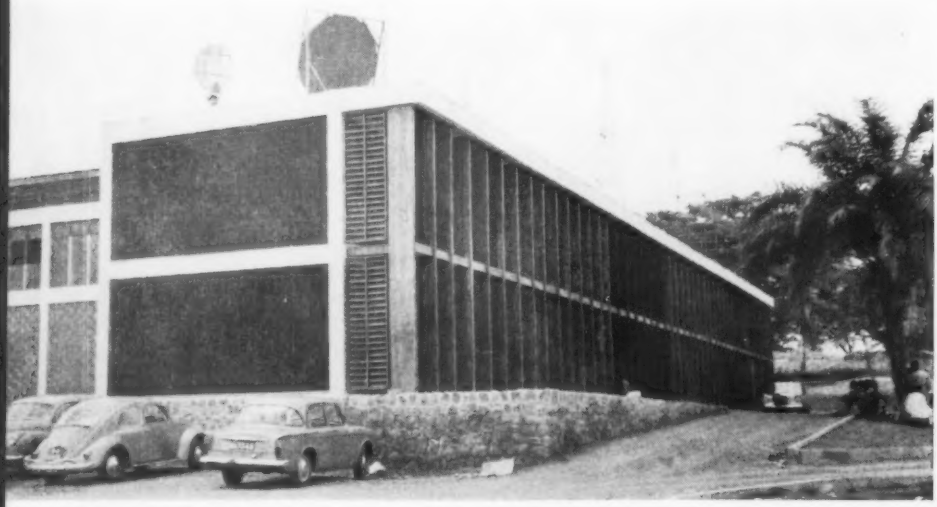
There are two transmitters, one is at Nago, near Ibadan, and covers the city with an ERP of 1.5 kw. The other is at Abafon and has an ERP of 15 kw which is sufficient to put a good signal into Lagos, the capital of Nigeria. Thus one station covers at the same time the capital of the Western Region and the capital of the country, a potential audience of far more than a million people. Nothing like this audience exists today, for much of

the area does not have electricity, nor will it exist tomorrow, because television sets are expensive in Nigeria; but by the day after tomorrow television can be a powerful force in a country and a continent that is racing into the twentieth century at full speed. At present there are less than five thousand sets in operation, with probably the highest viewing audience per set in the world.

Two Marconi Broadcast Vidicon cameras are available for studio use, augmented and/or replaced on occasion by two Marconi MK 111 Image Orthicon cameras from the remote unit, which the British sensibly refer to as the "outside" unit. In the control room are two 16mm film projectors and two 35mm slide projectors feeding a Marconi Vidicon camera, and a stand-by unit consisting of two more 16mm projectors and one 35mm slide projector feeding a Pye camera. Titles, program listings, etc., are usually mounted on a magnet board in black letters and projected with one of the studio cameras.

The original staff was British, most of whom came from a similar operation in Cyprus. Nigerians have been trained and absorbed into the staff at a relatively rapid rate. During live programing, the talent, floor manager, sound men, and the director would all be Nigerian.

The only expatriate (as the British and all non-Nigerians are called) would be a stand-by engineer supervising a Nigerian trainee on the video panel. Maintenance and technical standards, however, will be the responsibility of the expatriate engineers for some time



Construction is of cement blocks faced with Nigerian mahogany.

to come, because of the complex and sophisticated nature of the training required.

The policy of the station is in the hands of a board of six, three members representing the Government of the Western Region and three members representing the Rediffusion interests. There is no seventh vote. This places a heavy demand upon the board members and the managing director for an enlightened type of cooperation but it is symptomatic of the way Nigeria is approaching many of its problems as it develops its political and national spirit of independence.

The station is on the air about five hours a day. One hour per day is devoted to school television, presented between 1:00 and 2:00 p.m. The remainder of the schedule starts at 6:30 and runs approximately to 10:00 each night. The schedule consists of film packages, like *Man Called E, Dangerous Assignment, Life With Elizabeth, Lone Ranger,* and *Robin Hood,* periodic five-minute newscasts, and one live half-hour per evening, which may vary from dance combinations to panel discussions. Some of the programs are sponsored, but most of the commercial business is spot films, usually made especially for the African market.

There is a contractual obligation for two hours a day of public service and educational material. Only one hour a day is used for this kind of television on a regularly scheduled basis, and is produced for the station by the broadcasting section of the Ministry of Education. Christopher Kolado, the far-sighted hand of the broadcasting section, got the first school program on the air November 2, 1959, immediately after the station started, and has since programed an hour a day five days a week—usually split evenly between film and live productions. Arrangements have been made with the two leading suppliers of television sets to install television in the schools of the area as rapidly as electricity reaches them with a potential maximum of a thousand sets. About sixty are in operation in the city of Ibadan and the territory immediately adjacent to it, and an advisory council has been informed to help develop the most fruitful kind of programing.

Immediately upon learning that television was to become a reality, Kolado asked for professional help. A request was processed through the Nigerian government to ICA, the International Cooperation Administration, asking for a television professional with educational experience to advise in the development of educational programs, the improvement of production, specialized training of personnel, and problems of utilization. The request was favorably considered at Lagos and Washington, and the author of this article was honored by an invitation to spend two years in Nigeria as an educational TV pioneer, working with the Ministry of Education on school programs, and aiding, as plans materialize, with informal adult programs during the evening hours.

How to Use Broadcasts in the Classroom

NAEB utilization committee offers demonstration kits

By **Clair R. Tettemer**

Chairman, TV subcommittee, NAEB utilization committee. Director, school programs and research, KTCA-TV, St. Paul.

When teachers begin to use educational broadcasts in their classrooms they are faced with the problem of developing utilization "know-how." This is a difficult problem to solve. Even the word "utilization" defies definition. To some it means a few minutes of activity carried on immediately before or after an instructional broadcast; to others it means weeks of preparation and follow-up; to all it means taking a careful look at the needs of their classes. Each teacher has to develop his own utilization techniques. Specific procedures have meaning only to the extent that they increase the lesson's effectiveness, and only the classroom teacher is able to judge which activity is appropriate for his class.

For years educational broadcasters have recognized the value of team teaching. The classroom teacher has always been an important member of this team. Unfortunately, with the advent of television, the broadcaster has been so involved with the production end of the lesson that the classroom teacher many times has been left to shift for himself. The question of how to help bring about more effective classroom use of radio and television has been the concern of the NAEB utilization committee since its organization in 1957. Local school systems and other educational groups have made some attempt to help the teacher develop utilization skills through demonstrations, workshops, and seminars. For instance, the Association for Education by Radio-Television sponsored a Utilization and Evaluation Day in conjunction with the spring meeting

of the Institute for Education by Radio and Television. In 1956 the AERT and the NAEB merged, and the NAEB utilization committee has continued to sponsor this utilization meeting.

Probably the most serious difficulty with the utilization courses, workshops, and meetings is the lack of adequate demonstration material. There is a constant stream of requests directed to those few individuals who are fortunate enough to have kinescope or tape recordings of instructional broadcasts. These requests cause a frantic search each spring as summer workshops are being planned. This is understandable when you consider that one of the basic precepts of all utilization courses is familiarization with the medium, and the use made of it. The increasing number of these requests in recent months can testify to the seriousness of the shortage of good program examples.

In July, 1958, the NAEB held its second seminar on instructional uses of television and radio. One of the recommendations made by the participants at the close of this seminar was "that the NAEB initiate group action with appropriate professional educational organizations to bring about the preparation and distribution of a series of kinescope recordings (with related guides, outlines, and manuals) dealing with principles, practices, problems and examples of classroom utilization of educational television and radio." This recommendation was discussed several times by the NAEB utilization committee and in October, 1959, a special developmental project was set up to establish a library service of utilization materials.

The original thought was to collect existing examples of good utilization practices, organize them into "demonstration kits" and make them available from NAEB headquarters to individuals or groups working to improve the effectiveness of instructional broadcasts. It was felt that each kit should be self-contained with all the material necessary to carry on a utilization demonstration. While kits on various aspects of utilization were needed, it was decided to concentrate the first efforts on demonstrations which would be aimed specifically at groups of classroom teachers or prospective classroom teachers. Later kits could be designed to be used by school boards, school administrators, parent-community organizations, and other non-teaching groups.

One of the first requirements was to find out what materials were available. A series of letters requesting information was sent to some sixty people active in the field of school broadcast utilization. They were asked to describe any utilization material they used and could make available for national exchange. Many answers were received, but the news was somewhat disappointing. Nearly everyone pointed up the great need for this service by enthusiastically endorsing the project — and placing an order for the first available

kit. It was apparent that very little material dealing with the specific problem of educational broadcast utilization existed. The big stumbling block seemed to be time and money. Many excellent ideas for kits were offered, but only a few people indicated they could take the time or money to produce a kit.

There were some bright spots in the survey, however. Many of the people said that they would be willing to undertake the production of special demonstration material if the costs could be underwritten. Information was received that several other organizations were also interested in the problems of utilization. The Department of Audio-Visual Instruction and the Department of Classroom Teachers of the National Education Association, as well as the American Association of Colleges for Teacher Education, were working on projects in the utilization field. DAVI and DCT were jointly sponsoring a television utilization seminar to write a booklet dealing with utilization. In addition, DAVI was developing a film on the unique contributions of television to education. The television subcommittee of the AACTE was preparing an outline to be used as a basis for organizing workshops and courses to help achieve effective utilization of instructional television. These organizations were contacted immediately to see how their activities and the NAEB project could be correlated.

It was learned from the survey that the staff of the St. Louis Public School FM station, KSLH, was planning just such a demonstration kit for their tenth anniversary and would be willing to develop this kit into a prototype for the NAEB project. This pilot kit was previewed at the NAEB convention in San Francisco in October, 1960. The kit contains a set of sixty color slides, two audiotape recordings, and a presentation outline for the discussion leader. Its objective is to show how one teacher used a program from the "Let's Find Out" radio series.

The presentation starts with a tape-recorded introduction giving the background for the utilization demonstration. Following this the slides are shown with a synchronized tape-recorded narration. The tape and the slides present a case study of the utilization carried on by this teacher. The slides illustrate the activity and reaction in the classroom before, during, and after the radio lesson. Some of the pictures were taken during the pre-broadcast recording session in the studio; others were taken at the actual time of reception; and some were taken days and weeks after the program, whenever some classroom follow-up activity was taking place.

On the synchronized tape recording a narrator is used to set the scene, make transitions, and underscore important points. Excerpts from the actual broadcast tape use the teacher's voice to show the pacing, her intonation, and content of the lesson. Special recordings made in the receiving classroom of the childrens' voices

are used to point up the utilization procedures. All of these, when synchronized with the slides, give a composite view of the broadcast, the listener preparation, the classroom listening, and the follow-up activities. A manual containing information for the program chairman or discussion leader is included in the kit. In addition to the description of how to carry on the presentation, the manual contains background information on KSLH, the "Let's Find Out" radio series, and the use of radio in the classroom. This prototype kit should be available for loan in May.

Many answers revealed the immediate need for examples of outstanding instructional broadcasts. Fortunately these examples exist, but they need to be collected, evaluated, duplicated, and made readily available. Since it will take time to design and produce demonstration kits dealing with specific utilization subjects, the project was divided into two phases. The first is the establishment of a program-example library. This library will include film recordings of instructional radio programs. The present plans do not call for the distribution of videotape recordings since many of the borrowers may not have videotape preview facilities. The second phase, which will take longer to develop, will include specially produced kits of demonstration materials.

The development of these plans was greatly aided by a contract from the United States Office of Education, Department of Health, Education and Welfare. This contract provided for the establishment of a screening committee to audition and select lessons for the program-example library, and to review the plans for the production of demonstration kits. At the end of the contract four reports will be available: (a) an assessment of the feasibility of quality production, distribution, and use of demonstration kits; (b) a set of plans for specific kits; (c) a list of film and tape recordings of outstanding classroom broadcasts recommended for the program-example library, and (d) the pilot kit produced by the staff of KSLH.

So far this project has sketched in the dimensions of the utilization problem. It has revealed the seriousness of the need, and by the first of May, when the contract with the U. S. Office of Education expires, there will be a concrete plan for the establishment of the NAEB demonstration materials service. How fast and how completely these plans will be realized will depend on many things—not the least of which will be money.

Doctors Educated Via Open-Circuit TV

KUED broadcasts medical clinics after sign-off hour

By **Keith M. Engar**

Manager, KUED (TV), University of Utah, Salt Lake City.

In September, 1959, the University of Utah College of Medicine commenced a series of open-circuit television clinics on KUED, the university's ETV station. The medical school had previously presented short series in 1953-54 over a Salt Lake commercial station. The first series had been publicized by the station, resulting in a fairly substantial lay audience—but when the latest series was planned, the ETV station management and the College of Medicine agreed that only M. D.'s would be informed of the time and station. Accordingly, the station signs off the air one night per week at 9:30 p.m. and remains dark for one-half hour. At 10 p.m., the station signs on with the unpublicized medical clinic, presumably watched only by the profession.

Thus far, the results seem to indicate that the clinic is achieving the closed-circuit control of circulation with all the advantages of ubiquitous open-circuit geographical coverage. The station's signal reaches at least 80 per cent of the state's population, plus areas in other states. Approximately 1,300 doctors are in the area.

Based on study guides distributed, perhaps 20 per cent of that number are regular participants in the clinics. The medical college is conducting surveys to evaluate the use and the quality of the ETV clinic.

Obviously, ETV is but one of many methods which are being used for postgraduate medical education, but preliminary information indicates a steadily growing acceptance of this technique for medical clinics by the profession.

The following list of clinic titles

illustrates the extremely specialized nature of the subject matter:

- The Diagnosis and Management of Cerebral Vascular Disease
- Common Hemorrhagic Disorders in Children
- The Pathogenesis and Pathology of Emphysema
- The Recognition of Chronic Ulcerative Colitis
- Clinical Diagnosis & Management of Diabetes Mellitus (a ten-week course)

As is evident, short courses as well as single clinics are presented within the format. Questions are handled by telephone and by mail with carefully written responses.

Some of the programs have been kinescoped for the benefit of physicians who live too far away to get KUED's signal. The tentative plan calls for these films to be bicycled around the state.

Careful consideration is given to production details by a team consisting of the director of post-graduate medical education and a KUED producer-director. Because the material presented is a life-and-death matter in many instances, it is vitally important that there be careful preparation. Station personnel have been greatly impressed with the flexibility of most participating doctors, who have been quick to grasp the inherent advantages of television. The project has been fortunate in the talents of the medical director who gave careful study to TV before the project commenced. A producer-director specializing in medical television will ultimately be engaged by the college if present plans mature.

At the present time, the clinics are produced in the KUED studios and, while this hasn't limited subject matter until now, there would be more flexibility were the telecasts to originate from a medical center. Plans call for the university's new medical center to be equipped with television ranging from color cameras to vidicons. When the center is completed, clinics can originate directly from the area where personnel and equipment are concentrated.

Just as texts and papers are shared, so may these clinics be used by other institutions via videotape or kinescope recording. The division recently received a grant from the Wyeth Laboratories to videotape a short course of ten clinics on diabetes mellitus. Such a series can be sent to another college of medicine for use on an ETV station or via closed circuit. It is entirely possible that a "network" could come into existence with the sole purpose of distributing such specialized materials as these TV clinics. Certainly the medical profession should explore this possibility.

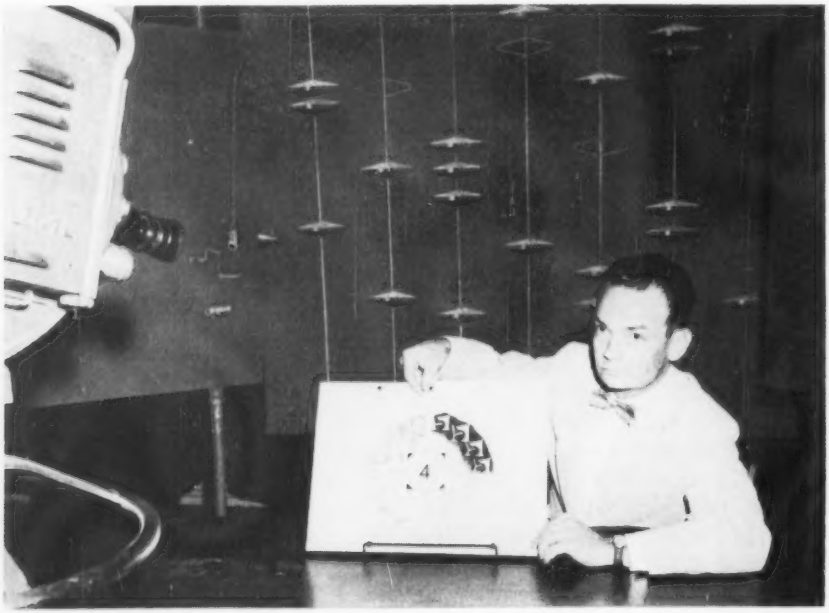
From the television standpoint, whatever success this venture has achieved rests with the willingness of an ETV station to present material for a specific audience at a given time. It is doubtful that a commercial station could afford to

do this except perhaps in the middle of the night.

As an institutionally operated ETV station, we can dare to use premium time for an extremely small but influential audience in spite of the assertion of such able scholars as Dr. Sydney Head that an ETV station "cannot justify its existence by appealing to only a few hundred people at a time."[1] Geographical coverage is justification to reach a small but acutely important audience. It would be ridiculous to program an ETV station with a great number of types as TV Clinic, but an ETV station has an obligation to support such specialized projects when the medium is uniquely qualified to do the job. We at KUED are gratified with the achievements and challenge of postgraduate medical education by TV and are committed to continue in the project as long as the need for such education exists.

[1]Head, Sydney W., Broadcasting in America. (Boston: Houghton-Mifflin Co., 1956) pp. 409.

Dr. Roger Osborn, mathematician in **Project: Mathematics** at the University of Texas, demonstrates the use of a television graphic illustrating the relationship between numbers and a numeral.



Project: Mathematics

Videotape teaches teachers

By **Hugh Greene**

TV writer-producer, radio-television, University of Texas.

Ingenious as have been both educators and broadcasters in developing new and rewarding uses for television, little has been done thus far in using this new visual medium in the area of in-service education of teachers. In-service education involves professional improvement of teachers in their understanding of both content and methods. Some 80 to 90 per cent of the schools in the United States have in-service programs of one kind or another.

During the spring of 1960, a mathematics in-service education series utilizing videotape was presented for Austin, Texas, elementary school teachers by the University of Texas. The series — *Project: Mathematics* — was the result of a fortuitous meeting of public school need with existing university research. The aim of Dr. Irby Carruth, superintendent of the Austin Public Schools, was to increase teaching effectiveness in the area of mathematics; that of Dr. M. Vere DeVault, associate professor of elementary education at the University of Texas, to study the relative effectiveness of selected media in in-service education in mathematics. The two aims complemented each other: For the public schools the series provided interest-stimulating sessions with content and method authorities; for the university the series provided a pilot for an expanded project to be undertaken later in the year.

The project, operating under a grant from the National Defense Education Act, was organized as a joint effort of three university departments—mathematics, radio/TV, and curriculum and instruction. In addition to Dr. DeVault, the project team was made up of Dr. Roger Osborn, assistant professor of mathematics; Claude C. Boyd, lecturer in education; W. Robert Houston, research associate in education and TV instructor; and Hugh Greene, television

writer-producer. For these men, the pilot project would also be a test of team teaching in in-service education centered around television.

In a series of five weekly hour-and-a-half sessions scheduled on the campus of the University of Texas, the planners hoped to achieve the following two objectives:

- To present some key concepts evolving in modern mathematics, and to show how these may have implications for and direct utilization in the teaching of elementary school mathematics
- To stimulate teachers to pursue further their study of modern mathematics

To attain these objectives, the project team used a variety of approaches: lectures, question-discussion periods, "buzz" groups, written materials, as well as closed-circuit television. Teachers were notified of the in-service series in mathematics by a memorandum from the division of instruction of the Austin Public Schools. Response exceeded expectation. The project team and school administrators expected no more than 30 or 40 participants because this series was to be in addition to regular in-service programs already in progress. However, with the first announcement, 273 teachers (over one-third of the staff of Austin's elementary schools) volunteered! This number had to be limited to 252 because of space limitations.

Although from the point of view of the school administrator, television was only an unexpected "fringe benefit" of the in-service series provided them by the university, from the first the compelling visual medium had far-reaching influence in determining the quality of the sessions. There was first of all the startling enrollment mentioned previously; the appeal of television — whether it is called glamour, showmanship, or merely novelty — had surely made itself a determining factor in the minds of many teachers in their decision to attend.

More profound were the influences television exerted upon the group of project planners. The long-term project for which the Austin series was a pilot called for half-hour videotaped programs, possibly to be aired by commercial stations. There was, therefore, built into the project by virtue of the use of television a necessity to think in terms of a strict time limitation and of visual appeal that could compete successfully with the slick production techniques of commercial television. The time limitation made careful planning a necessity. The information to be communicated on television had to be concise, well organized, and perfectly clear. The relative permanence of a program once it is recorded on videotape made perfection a goal to be earnestly pursued. These pressures, unsought but unavoidable, tended to make the project team better communicators — for in thinking television, they

were also thinking effective communication and therefore effective teaching.

COURSE CONTENT

Even before the Austin schools' request for an in-service series in mathematics, the university project team had been meeting to prepare programs for the larger project later in the year. The television programs evolved out of a series of brainstorming sessions. The first step was to select the content. For the Austin pilot project, five areas basic to elementary school arithmetic were determined:

- The differences between numbers and numerals
- The concepts of base and place
- Selected laws of arithmetic
- The structure of the number system
- Model theory in mathematics

The first three of these five were presented by closed-circuit television. The method used in preparing the television script was this: Dr. Osborn, the mathematician, prepared a written essay; to it were added principles of teaching method by Dr. DeVault. From this essay, a TV script was prepared by Writer-Producer Greene. The entire group met to review and revise the script and prepare a final version.

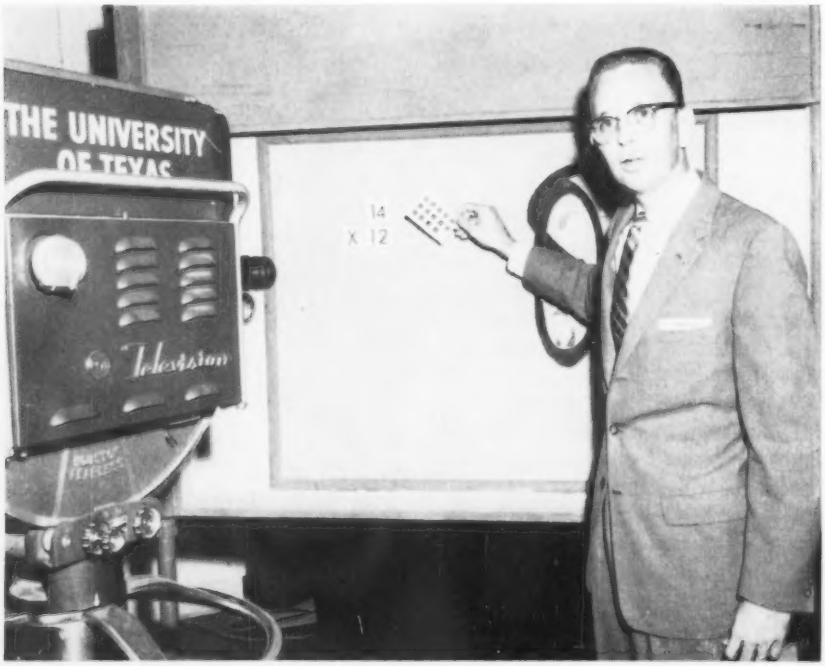
It was during the preparation of the script and subsequently during the production itself that the influence of television's advantages and limitations were felt most directly. Fundamental to the communication problem in *Project: Mathematics* was an apparent discrepancy between the mathematical content and the communications medium: The content of mathematics is essentially symbolic and abstract; television, on the other hand, transmits with the literal and concrete view of the eye. In translating mathematics to TV, it was essential therefore to deal in concrete terms and with actual objects as much as possible. Practical concerns often put obstructions in the path of this general idea. Often the best example of a mathematical concept would involve actual objects too large to show, or the device that would best do the job would be too expensive or too cumbersome to build—and, as always in television, the solution of the communication problems represented a compromise between the ideal and the practical.

The solution in the case of *Project: Mathematics* resulted in the utilization of several unique visual devices, the kind that could be, but seldom are, used in a classroom because of budget limitations or difficulty in setup or preparation. A magnetic board provided a unique way for the building up of mathematical problems and the display of visual examples; this board is a sheet of metal to which cards with small magnets attached to them may be affixed. A strip chart permitted the introduction of animation into the visual: Formulas

or equations composed of letters could be changed into numerals using this device — or information could be revealed a step at a time rather than showing a mass of confusing data at one time.

Some time-honored teaching methods had to be re-evaluated in terms of television. For instance, a chalkboard tends to become dusty and reduce everything on the television screen to a uniform grey which obscures the writing, so an easel holding large sheets of paper was used instead. Since information written on the easel had to be tailored to television's 3 x 4 aspect ratio, lengthy equations or logarithms were rejected in favor of more simplified expressions using no more than five lines. Wherever possible a concrete example that could be easily pictured, either by means of a sketch or photograph, was used.

Television also provided the possibility of using live actors. *Project: Mathematics* made use of actors on one of the videotapes in the Austin pilot series to illustrate the fact that a certain arithmetical law is not universally applicable. The associative law for addition—without going into great detail here



W. Robert Houston at the magnetic board.

—implies that numerals in a problem may be added by grouping or associating them in almost any combination. That this law does not apply when it comes to food was shown when one actor appeared on the screen enjoying a hot dog with mustard, and a coke. Shortly following this scene, another actor was seen combining the same foods in a rather eccentric manner: First he ate the hot dog; then he added the mustard to the coke and finally drank the stuff—as much to the amusement of the television cast and crew as to that of the viewer. All of these television visuals combined to create the "plus" of showmanship which contributed greatly to the effectiveness of the series. Not only did these graphic aids serve as attention-getting devices, but they often compressed complicated content into a few concise and easily understood seconds.

SERIES EVALUATED

In the Austin series of *Project: Mathematics* those conducting the in-service training learned nearly as much as the teachers enrolled. The evaluation of the series indicated strengths and weaknesses and suggested courses of action for the future of the project. The system of evaluation made use of several opinion-sampling techniques. Twenty selected teachers served as a barometer of teacher opinion; they talked to other participants and sent weekly reactions to the project team. In addition to these weekly evaluations, there was a final two-hour round-up session, in which the twenty representatives discussed the entire series. Finally, 223 of the participants answered a comprehensive series of questions regarding their reactions to the series. A detailed statistical analysis of the data obtained from the final evaluation sheets revealed two significant facts:

- Based on a question asking for statements of opinion regarding effectiveness of the series, the reactions of teachers with four or more years of experience were significantly more favorable to the series as a whole than those of teachers with three or fewer years of experience.
- Based on a question asking for a rating of the relative effectiveness of the different media employed in the in-service series, the reactions of teachers with three or fewer years of experience were significantly more favorable to the television portion of the series than those of teachers with four or more years of experience.

It appeared, in other words, that television was doing a better job than any other media in communicating basic arithmetical concepts to relatively inexperienced teachers. The more experienced teachers rated television as a contributing factor to the series' effectiveness, but regarded it as supplementary to classroom lectures.

What the television portion of the project provided the teachers was a clear, concise exposition of arithmetical content in a half-hour format; according to the evaluation

sheets most teachers liked it. In general, the results of the evaluation showed that television as a medium of in-service education had high potential. Teachers as a whole felt television was as effective as face-to-face lectures and more effective than question-discussion sessions or written materials. They were impressed with the evidence of planning and conciseness which characterized the *Project: Mathematics* videotapes. Eighty-two per cent of the participants indicated that they would like to attend a similar series in the coming school year.

CONCLUSIONS

Although final evaluation will not be available until completion of the project, certain conclusions may be made. Television can be utilized in in-service education in improving the quality and increasing the quantity of such programs. Television, through the relatively new development of videotape, can provide a circulating library of presentations by nationally and internationally recognized authorities in various fields of education. Using professional television production techniques, these programs can be made available to school systems for use on commercial or ETV stations or on closed-circuit systems. Videotape also makes television an economical method of in-service education; after the initial expenditure of time and funds, a single program can be used many times by many different school systems.

Furthermore, the quality of in-service training can be high. Television and the relative permanence of videotape demand quality, and that demand can be met through high calibre production and the development of skillfully executed visuals — the kind that would be prohibitive in cost or time if developed locally for classroom use. The use of visual materials by the television in-service lecturer is smoother than the cumbersome setting up of projectors and screens, special easels, felt boards, etc., which the classroom lecturer must suffer through. On television these devices can be made ready for the instructor on demand by careful pre-planning and rehearsal.

Television then can be an economical, time-saving, high quality, and extremely effective device for the in-service education of teachers.

A by-product of the Austin series is the hope for future development of cooperation between different disciplines to attain an educational end. The mutual sharing of skills and knowledge which went into the Austin series can be, and should be, duplicated in other in-service projects. It is a sharing based on each participant's respect for the other's profession, and in the maintenance of open-mindedness that leaves all the participants ready to learn from each other. In this spirit of cooperation, it is hoped, lies the answer for the eventual fulfillment of television's potential in the in-service education programs of our nation's schools.

How Good Is TV in Latin America?

Author recommends mass media center to train personnel

By **William H. Tomlinson**

Consultant in learning media, Stephens College, on leave from Michigan State University, where he is a TV program associate.

Recently I was privileged to give a lecture series in South America for representatives from eighteen countries. Included were journalists, deans of Latin-American schools of journalism, and lawyers specializing in journalistic principles. As I discussed with this group . . . Why must we always be on the defensive with regard to totalitarianism? More can be done to combat the pervasive effects of this ideology. What more effective way is there to accomplish this than through the channels of communication?

Over the past several years I have had similar opportunities to discuss the potentials of the mass media — particularly ETV — with educational leaders, administrators, teachers, government executives, and others from Spanish-speaking countries. This article has been prepared as a result of these conversations.

It is not a solo voice saying: "Something should be done about our mass media." After speaking with several hundreds of these administrators and key personnel who express serious concern, I would say that something *must* be done if these countries are to retain their freedom of expression, and seek out means to demonstrate good through the mass media.

Something must be done for these people who are concerned about the problems brought about by television, and the effects which this medium has, and will continue to have under present undisciplined conditions.

Television programing in many of these countries is not good. An added note of concern is expressed by an official of the Pan-American Union when he says that he is convinced of the need for greater

awareness on his part, as well as for the persons in the television centers which he visited in six of the Latin-American countries, of the techniques for presenting more imaginative programs. He continues, "Too often the impression is left with viewers that Inter-American cooperation is a wonderfully idealistic endeavor which is carried out in faraway places."

It is these same Latin-American countries which look to the United States for help. They look to the United States for program materials. Much of what we provide for them is good. Some of the materials which we send to them, however, are not good. The program materials come from many different sources, and not all of the program sources are carefully screened to insure that the content and quality are good, and apropos.

These countries have found certain of the television programs which we forward to them to be of value, but they have indicated that they would like to explore the potentialities of television beyond the realm of the "packaged shows" which we provide.

Representatives of these countries have good ideas for the origination of television production formats. They have ideas of how to utilize the medium for educational and in-school purposes in order to help those in their country who are unable to presently read or write, or who wish to improve upon their lot.

They have concepts for programs which reflect the good culture and tradition of their nations. But they do not have the technical know-how which would allow them to efficiently and effectively prepare a television production.

Those of us in the United States who have been engaged in television for many years have advanced our production and teaching techniques concerning this subject to the point where we are in a position to help these people in Latin America demonstrate methods of good communication practice in programing, production, and administration in the development of programs related to education, information or culture.

BEGIN WITH GOOD COMMUNICATION PRACTICES

Why are good communication practices important today? Simply because those television programs which are being offered in the Latin-American countries at present do not always reflect the best in quality and good taste. Ways have been developed to use television to the best advantage in communicating the good thought. Now is the time to consider assisting the people of Latin America with these good thoughts, since television is just beginning in these countries.

We know that as of mid-1960, all but three of the countries of Latin America have television.

- Take Brazil, for example. Television is rapidly developing in this country. There are now nineteen transmitting stations in operation, including relays. The number of sets in use is very near the million mark.

• Or, in Colombia, the Ministry of Education plans to import 20,000 television sets for its schools and colleges. They also plan to organize educational television in that country. What guarantee will the people of Colombia have of good program content with visual appeal which would stimulate the viewer to learn more through the pictorial image and the spoken word?

• In Central America — in Costa Rica — there is general satisfaction concerning the country's "coming of age" by installing television. The fact that the country's first television station is in private hands, rather than under government control, has been recommended by a former regime. But what does it mean to be in "private" hands?

• Ecuador's first commercial television station has a schedule which consists of approximately 75% film, and 25% "live" programing during a 20-hour period per week. One must ask what kinds of film fill the 75% of their broadcast schedule? And what *quality* of "live" production is being offered in the 25% block?

• In Venezuela, a survey carried out in Caracas during the month of May, 1960, indicated that 120,000 homes (67% of the total in Caracas) have television sets.

From these trends it would seem that the people of South and Central America are enthusiastically interested in moving into the field of television. What direction are they taking? What forms of television programing are they developing? If their program schedules include little more than old feature films, or series designed originally for the people of the United States, with supplementary sound tracks in Spanish — then the question of the most efficient use of the medium is raised.

Latest reports indicate that transmitters are being installed, television receivers are being included in the homes, program schedules are being filled with "live" and filmed presentation, but toward what end are these people moving? If the medium is to be used for nothing more than commercial exploitation, then one questions the validity of such an adventure.

How are these people being helped with the organization of television programs? How can they be guaranteed better production techniques? Those Latin Americans who are truly concerned about the effects of mass communication on their people, are seeking out ideas for the manner in which they can best use television to progress in the right direction for its use.

WE DISTRIBUTE INFORMATION

The United States Information Agency is geared to supply stations and networks abroad by USIS posts. This agency is designed to give foreign peoples greater knowledge and understanding of the United States of America. In this respect, the USIA is doing good.

Such program materials include explanations of official aims and

actions of the United States, factual reports on American scientific, education, economic and cultural matters and a wide variety of special reports on events of particular interest to individual countries or groups of countries.

Some of the programs are produced especially for the Agency in the United States or in foreign countries under the supervision of the overseas posts. Others are acquired from the country's commercial stations or networks and from industrial or educational television concerns. It would seem, then, that we have a large source of materials which are available for distribution overseas in the form of film, kinescope recordings, or videotape. We are able to provide these countries with these items, but what about the remainder of their broadcast day in which their program schedules are *not* filled with the good materials which we provide?

We need to supply these people with more than kinescope recordings, films, and videotapes. We must help them train personnel from the Latin Americas who would receive practical, intensive instruction in television production, programing, and administration. We must help them train communicators in the techniques of good program practice, and the good use of the medium.

The infiltration of commercial interests — in certain instances for nothing more than exploitation purposes — in these countries has degraded the idea and ideals of a medium which could otherwise accomplish the feat of teaching the people, and reaching them with good. In many respects, the medium has become a pure entertainment device, interrupted by commercials, rather than a wholesome means to bring good to uplift the thoughts of the individuals in these countries.

I have seen the low quality of local, "live" program origination — debased values of poor program tastes — exhibited in some of these countries which have recently brought in television.

I have seen programs with twenty-five minutes of commercial copy, supplemented by five minutes of program content — and not good content. Included in the dialogue of some of these programs have been the double entendre, the vulgar performance, the display of items in disgusting taste.

I have heard expressions from worried mothers who would not allow their children to view the television screen because of the misuse of the medium by the few who had taken control.

I have watched television programs which have contributed little or nothing to the cultural or educational advancement of the people.

URGES A MASS MEDIA CENTER

If we would strengthen our alliance with the Latin Americas, we would investigate how we may increase the effectiveness of intercommunication through the use of the mass media. We would inaugurate a Center for the Mass Media for the Americas.

We would begin a mutual guidance program to effect better intercommunication through the mass media.

Such a Center would train mass communication personnel in the development of program ideas, and in proper production and administrative techniques. Under bilingual conditions, we would seek out the most perceptive personnel who would be trained in good practices — unharnessed by commercialism. They would be supervised in concepts of responsibilities toward the mass media, and toward their communities. They would be trained in ethical procedures which reflect good taste in programing. They would be trained in the impact of the visual message. So at the completion of their training they would return to their country with a better concept of good program practice, and organization for better communications.

WHERE TO LOCATE THE CENTER?

The place which would seem to be most ideally suited for a center

- must be geographically located to be convenient and accessible for representatives from North, Central, and South America.
- must have accommodations for a physical plant and learning center for the participants.
- must have the latest facilities for the dissemination of information related to mass communication; the latest training devices, including automated teaching devices; the most competent personnel to train the participants; and top quality participants who would one day become the leaders in mass communication in the Americas. In addition, the facilities should include the latest professional television and radio equipment with provisions for both aural and visual recording.
- must be in an environment which is culturally compatible for both Spanish-speaking and English-speaking personnel and participants.

There are several places which might meet these recommendations. One which seems to come closest to these requisites is the island of Puerto Rico.

Wherever its location might be, such a center would provide the mass media with better producers, better directors, better program originators, better administrators, and more creative writers. In addition, it would help the peoples of Latin America to help themselves with the creation of good educational, informational, and cultural formats with strong visual appeal. And in the nations with the mixed spoken expressions — the English, the Spanish, the Portuguese, the multiple tongues found in South and Central America, the varied dialects of the Indians — what better form of communication?

Television has been recognized as one of the most important instruments for the advancement of information and education which has been devised to date.

A Center for the Americas which would train people in the better use of the mass media would advance this instrument closer toward its goal.

Tape Documentaries

A guide to production

By **Walter P. Sheppard**

Presently studying for his doctorate at the University of Wisconsin. He has been in broadcasting—radio almost exclusively—since 1947, serving both commercial and educational stations as writer, announcer, and producer.

When he was public affairs director of CBS, Davidson Taylor once compared the radio documentary to Al Capp's schmoos. Capp, he wrote, ". . . wishes sometimes that all schmoos were dead; but he can't kill off those ever-lovin' little things because they have so much vitality and so many beneficial uses. The documentary is rather like the schmoo. It is just naturally one of man's best friends . . ."[1]

The radio documentary is reviving — again. Commercial Station WBZ in Boston has been producing successful documentaries and documentary segments for its *Program PM* series.[2] Robert Lewis Shayon's NAEB series, *Everybody's Mountain,* is now in its second airing on some stations. Both the CBS and NBC radio networks have used the format within the year for programs which attracted much attention. Discussing programing last summer at the Madison seminar on the proposed live educational radio network, Richard F. Vogl reported "strong support" for "a weekly half-hour documentary report on a current news topic."[3]

This resurgence of the documentary provides an appropriate background for outlining one procedure by which tape documentaries can be successfully produced — something which does not appear to

[1]Davidson Taylor, "Is the Documentary Dead?" *Service Bulletin of the FREC,* Vol. 11, No. 6 (October, 1949), p. 1. Reprinted from *Variety,* July 27, 1949.

[2]See Edward L. Pearle, "An Award Winner!" *NAEB Journal,* Vol. 19, No. 3 (May-June, 1960), pp. 77-91.

[3]Richard F. Vogl, "Radio Network Programing," The Seminar Planning Committee and Betty McKenzie, editors, *Live Radio Networking for Educational Stations* (NAEB, 1960), p. 15.

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have been done before. Because it does not depend upon high budgets and large casts of talented actors, this is the type of documentary that most educational broadcasters produce.

The essence of documentaries is that they deal with facts presented in a dramatic, but not necessarily dramatized, fashion. They may be classified into two categories for convenience, although in practice there is frequent overlapping.

- The first category is the dramatized documentary, a studio re-creation of actual events, or a fictionalized treatment of actual events. *The Eagle's Brood*[4] by Robert Lewis Shayon is an example of the former; parts of the *This is War!*[5] series, of the latter.

- Documentaries in the second category are sometimes called "actualities" because they use the recorded voices of the people and the recorded sounds of the things involved. Since the real popularity of this type began when portable tape and wire recorders became available, the name "tape documentary" seems more accurately descriptive than "actuality." The first major one in the United States was apparently Corwin's *One World Flight*[6] series.

[4]This was the first program produced by the CBS Documentary Unit, broadcast March 5, 1947.

[5]The series was broadcast over the four major networks for thirteen Saturday nights, beginning February 14, 1942.

[6]The thirteen-week series was broadcast over CBS starting January 14, 1947.

PLANNING

In considering the documentary as a form into which expository and exhortatory programs might be cast, it is necessary to keep in mind two things: (1) Luther Weaver's observation that you do not need a momentous subject to use the documentary form,[7] and (2) the danger of approaching all documentaries as though their subjects are momentous.

A documentary must have a purpose: to explain a problem and urge a specific course of action to solve it; to explain a problem and suggest possible solutions; or to present a purely informational, or background, program on a subject where no solution is involved.[8] Explaining a problem and not indicating what the audience can do to contribute to finding the solution is not a good idea. Even worse is telling the audience that the solution is up to it and then not indicating what can be done. "Crime on the Waterfront"[9] and perhaps some of the other programs in the

[7]Luther Weaver, *The Technique of Radio Writing* (New York: Prentice-Hall, Inc., 1948), p. 463.

[8]Some experts would not call a program in the third category a documentary. See, for example, Robert Saudek's comment, ". . . documentaries absolutely must give conclusions, and practical ones, too," in *Newsweek*, Vol. 31, No. 23 (June 7, 1948), p. 55; and Saul Carson, "An Examination of the Radio Documentary," *Service Bulletin of the FREC*, Vol. 11, No. 7 (November-December, 1949), pp. 1, 4.

[9]First broadcast August 16, 1951, as the fifth program of *The Nation's Nightmare*.

CBS series *The Nation's Nightmare* suffered from this fault.

Time is the most important ingredient for a documentary.

First, time is needed for planning. Successful documentaries are not thought up on Monday and broadcast on Friday. The subject must be thought about, researched, probed, broken down into its components. Only then can the program's purpose be determined.

Second, preparation time is needed to do additional research, gather material, interview people, write the program, and produce it. Writing in *The Christian Science Monitor* last summer, Frederick H. Guidry observed justly: "Few pieced-together essays that hit the airwaves today boast either the scholarship or the production values of documentaries from the pre-television era. The format is neither very well nor widely used in the present disc-jockey epoch."[10]

Third, time is needed to present the subject adequately on the air. One-time-only documentaries have no opportunity to build either an audience or a lasting impact. Most one-shot documentaries have had little effect unless they were part of a larger campaign, such as was Erik Barnouw's *VD, a Conspiracy of Silence*.[11]

The best approach, undoubtedly, is to have a weekly documentary series, which will build an audience, and to devote as many programs of the series to each subject as are needed to cover it adequately.[12] What adequate coverage is must be decided separately for each subject, bearing in mind that too much detail results in confusion, not clarification, and that "unless a documentary is absolutely honest and presents all that should be known without making concessions to any particular interest, it is built on a false intellectual foundation."[13]

In addition to time, the tape documentary is made up of the following ingredients:

- *Research* in libraries and on the scene
- *Raw material* gathered in the form of tape interviews and sounds to give the documentary life
- *Selection* of significant items from the research and raw materials
- A *script* written with as much imagination, inventiveness and showmanship as the writer can bring to it without distorting the subject
- A *production* that goes smoothly and brings out all of the values of the script without distortion
- An *open mind* that does not approach the research, interviews, or writing with inflexibly preconceived notions of how the final program will sound.

[10]Frederick H. Guidry, "Anne Frank's 'Portrait in Sound': Radio Station Birddogs An International Legend," *The Christian Science Monitor*, August 16, 1960; Atlantic Two-Star edition, p. 5.

[11]Broadcast on ABC, April 29, 1948.

[12]Carson, *op. cit.*

[13]Norman Corwin, *Thirteen by Corwin* (New York: Henry Holt and Company, 1942), p. 241.

INTERVIEWING

Every interviewer has his own methods. For this reason, there is no point in outlining a specific methodology: Any technique that gets the interviewee to relax and *respond naturally* and that results in the desired raw material is valid. There are, however, a few observations that might be helpful to someone who has never done any interviewing for documentary use.

Like ordinary broadcast interviews, documentary interviews are based upon as much knowledge of the subject as possible, and questions must be prepared in advance. The documentary interviewer has an advantage denied other radio interviewers: There are no restrictions of time or logical development on him. He is free to follow all avenues opened up by his questions, he can digress from the main path, and he can take the time needed to do the job thoroughly.

This freedom, of course, may be endangered by the prepared questions. The interviewer may become so intent on following them that he fails to follow up unexpected leads. The only way he can avoid this danger is by keeping constantly alert.

A touch that interviewees sometimes appreciate is receiving an advance outline, or series of guide questions, indicating the areas to be discussed. There is a danger here, too, for the interviewee may memorize his answers. This can be avoided by carefully rewording the questions as they are asked and by requesting the interviewee not to use notes.

To allow time for setting up the recording equipment, establishing rapport with the interviewee, and so on, experience indicates that a minimum of an hour should be allowed for each interview and that an hour and a half is better. The recorder should be set up and started running as soon as possible. Some tape is used up on preliminary chatter, but this procedure avoids creating the tension that may develop in the interviewee if the easy flow of amenities has to be interrupted to start recording. With the machine already running, the interviewer can just guide the conversation around to the topic to be discussed and get the interviewee talking about it before he is quite aware of the transition. If an engineer is available to operate the recorder, so much the better.

Interviews are best conducted without any third person present (except for the engineer, who should be tucked into a corner). Advisors and superiors sometimes inhibit responses by their presence. Accuracy can always be checked after the interview by playing the tape. (Teachers can be the most difficult about this because they want their pupils to use perfect grammar and to speak without any stumbling or hesitation, making the youngsters sound completely unnatural. The teachers should be opposed on this as strongly as necessary to win the point.)

A studio is not always the best place to conduct documentary interviews. The background noises of

a factory or an office or a home, if not too obvious or intrusive, give the interviews a quality of spontaneity and authenticity unmatched by a studio recording. Also, the interviewee is more likely to be relaxed in a familiar place than in a studio.

On-the-scene recording is, of course, not possible if the background would distract attention from the interview itself or if it is one that would interfere with freedom in editing. Musical backgrounds have to be avoided, for example, because editing destroys their continuity. When the background would interfere with editing or when it is too loud, the easiest solution is to record the interview in a quiet place and make a separate tape of the background sound pattern. This separate tape can be dubbed in behind the interview during production of the program.

This brings up a point that is not part of interviewing, but which is usually done at the same time. In addition to recording sound patterns to go behind interviews, as just described, other interesting and effective patterns of sound should not be overlooked at any location. Tapes of such sounds can be valuable in the finished program for backing narration, establishing atmosphere, punctuating a montage, and so on. Like any other sound effect, these sounds can, of course, be overused.

There is no rule on how much raw material should be recorded. It is probably not possible to gather too much if the writer is severely selective when preparing the program. For the thirteen half-hour broadcasts in his *One World Flight* series, Corwin recorded enough material for a hundred hours of air time.[14] The present author recorded about six hours of material for a series of six 15-minute programs that told "the story of active civic participation in Massachusetts high schools" and about thirteen hours of material for a half-hour program that traced an opera production from inception to performance.

It is wise to tuck an extra reel or two of blank tape into the equipment for an interview trip. Everyone who forgets this eventually has the unpleasant experience of running out of tape just as an interviewee thinks of another incident or a better way of stating a point, or calls in another person with something to contribute, or tells you that a machine that produces a useful sound will not be turned on again for two months—the day after the broadcast.

THE SCRIPT

• *Preliminaries to Writing*

Louis Sullivan said "form follows function." In tape documentary writing, form proceeds from content. Therefore, the program cannot be more than sketchily outlined or the writing begun until all of the raw material has been gathered and sifted.

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[14]Henry L. Ewbank and Sherman P. Lawton, *Broadcasting: Radio and Television* (New York: Harper & Brothers, 1952), p. 234.

The first step in the preparation for writing is the longest and most wearisome: listening to all the taped material. It is usually necessary to listen at least three times before starting to outline the program — once for an overview of the material, a second time for some notes, and a third time for more notes and checking details. Complex material may require five or six playbacks before an outline can be prepared.

A written transcript of the tapes makes it unnecessary to listen to the tapes more than once or twice at the beginning of the writing process. Making one is certainly tedious work, but the material is much more easily digested in written form than by ear. Even with a written transcript, the final choice of segments of tape to be used must be made by ear because a transcript does not indicate exact inflection patterns or articulation. A portion of a statement chosen for inclusion in the program without checking the recording may be found to end on an up inflection, or the interviewee's articulation may make it impossible to edit as planned. Adjustments after the script is finished take time.

There is no set ratio of the amount of taped material gathered to the amount of material used in the program,[15] but selection must be made ruthlessly. Only items having a definite bearing on the subject and moving the program along should be chosen. All color and life should not be drained out of the material, but patient and careful selection will uncover items that both move the program along and contribute color.

Once the tentative selection of the segments of tape to be used has been made, outlining the program is the next step. Once the outline has been completed in considerable detail, the tapes should be listened to again to make the final selection of the segments to be included and to time them.

The segments planned for inclusion should not be edited out of the original tapes until the script is completed, otherwise the writer may decide that he wants to use an additional sentence or two of a statement and then discover that the previous editing spoiled the fragments he wants to add. A far safer procedure is to postpone the editing until the script is finished and develop a system of indicating on paper the segments, or "cuts," of the tapes planned for inclusion. There are several ways of doing this. One used successfully by this writer looks like this:

JOE GISH (P4-2): START CUT: "I clearly remember the time when . . ." END CUT: ". . . then we got together and decided to go to New York." (0:32)

The name is that of the interviewee. "P4" indicates the reel of tape on

[15] An average of 8 minutes of recorded material was used in each program in the 15-minute series mentioned above. The half-hour opera documentary used 22 minutes of taped material, which is probably a little more than usual because of the musical material involved.

which the interview is recorded. The "2" indicates in which speech of Gish's the statement is to be found. The figures in parenthesis after "END CUT" show the timing of the segment, or cut. If Gish were on a tape with another interviewee, an additional figure would be inserted to show which speaker is Gish on the tape: P4-1-2 —tape number P4, the first interviewee, his second speech. In the production script, this notation, minus the location figures, can serve as a cue.

It may be worth the effort required to transcribe each cut completely rather than just making a note of the first and last words. (If a transcript has already been made for all of the taped material, the appropriate portions should be re-copied.) The transcript keeps the exact words of each statement to be included handy for reference while writing, it aids editing if some of the material has to be trimmed, and it serves as an absolute identification of each cut from the original tapes in case it is needed. The location figures explained above should be used on the cut transcripts, too.

Copying each transcript or START CUT-END CUT onto a separate sheet and adding a heading facilitates arranging the material.

● *Writing*

It is now time to begin writing. All of the types of radio writing — talks, announcements, drama, narration, interview and so on — have a place in documentary scripts, and all of the usual rules for radio script writing should be followed.

An effective and attention-getting opening is perhaps more important in a documentary than in many programs. The broadcasts of *The Nation's Nightmare* opened with the loud clanging of an alarm gong; Corwin's UN program *Could Be*[16] opened with a crescendo of laughter; and my own opera documentary began with Boris Goldovsky singing some unfamiliar music from *Carmen* in his best conductorial voice.

If possible, the opening should also make a promise to the listener, a promise that touches him vitally. Corwin's UN program *Document A/777* opened cold with:

> BULLETIN: Ladies and gentlemen: There is a man-made force thousands of times greater than the hydrogen bomb.[17]

The promise must be one that can be kept and must not be presented in a way that arouses false expectations in the listener.

Undoubtedly one of the reasons that the radio documentary has been in a decline was the unfortunate tendency of documentary writers and producers to succumb to *Productionitis bombasticosis.* Too many documentaries in the past began by holding out the promise of a thundering music cue from

[16]Broadcast on NBC, September 8, 1949.

[17]Norman Corwin, *Document A/777.* First broadcast over MBS, March 28, 1950.

Stravinsky's *Firebird* and a narrator in full voice, and then delivered nothing more startling than a simple talk on the local buttonhook factory, illustrated with "ta-pocketa-queeps," an inspirational statement from the company president, and the inarticulate mouthings of the factory foreman.

● *Narration*

The string on which the beads of taped material are threaded is narration. Possibilities for varying it should be surveyed before the usual third-person narration is written into a script.

First-person narration by someone who is in some way a part of the subject can be very effective *if the person can read well,* but few things in radio are more painful than listening to a businessman or a doctor or a teacher or a laborer reading badly. If first-person narration is used, the person's normal speech patterns should be studied and written into the script.[18]

Second-person narration gives the script a greater feeling of immediacy than third-person narration. It is written in the present tense ("progressive present"):

> BILL: You go off to the war . . . You come home to pack a few things, and you kid around as though it were nothing at all . . . . You get out the old letters from your girl . . . and you unstring your guitar, and put your tennis racket away in a frame, and then you come downstairs . . .[19]

Third-person narration itself can be varied from the usual unidentified voice. The narrator can be a character created for the program, or, as with first-person narration, he might be an actual person.

Other narrative variations include sung narration, such as used in *The Lonesome Train* by Millard Lampell and Earl Robinson; multivoice, or split, narration, used in *The March of Time* series; and devices to break up narration, such as the "proxy listener,"[20] who asks questions as the listeners' representative in the studio, and Corwin's Sotto Voce *(The Plot to Overthrow Christmas).*

● *Production Devices*

Any production devices that can add brightness and showmanship should be used in the script. They need to be chosen just as carefully as the cuts from the taped material, and they should make a positive contribution to the program and not be used for their own sakes. The best ones are usually developed from the subject. An effective example of this occurs near

[18]The procedure is similar to that used for *We the People.* See Max Wylie, *Radio and Television Writing* (Rev. ed.; New York: Rinehart & Company, 1950), pp. 610-11.

[19]Norman Corwin, "To the Young," *This Is War!* (New York: Dodd, Mead & Company, 1942), p. 267. Bill is the program narrator.

[20]The term is Erik Barnouw's in his *Handbook of Radio Writing* (Boston: D. C. Heath and Company, 1949), p. 57. This discussion of narration is based largely on his treatment of the subject.

the beginning of the "Crime on the Waterfront" program mentioned earlier.

Writer-producer Irving Gitlin wanted to give his audience some perspective for the program by quickly surveying the New York-New Jersey waterfront and indicating criminals associated with various parts of it, but he did not want to do this in a flat enumeration. He got a tape machine aboard one of the sight-seeing boats that circle Manhattan Island and recorded the guide's spiel. Those parts of the spiel naming specific waterfront sections were kept, and a brief sentence or two of narration was written to identify the gang associated with each. In the finished program, the guide was heard pointing out a part of the waterfront, followed by Bill Downs with the pertinent bit of identifying narration. To maintain the illusion of being on the boat, the sound of the boat's motors was heard behind the narrator as well as the guide.

A production device that has value for the variety it introduces into a sequence of narrator . . . taped segment . . . narrator . . . taped segment . . . and so on, was first displayed prominently on the NBC *Biographies in Sound* series a few years ago and may have been created for that series. The device was a kind of audible version of one of the ways in which a fiction writer presents dialogue.

The novelist would write something like this:

"I remember the last time I saw him," Joe's brother, Sam, said. "We went fishing out on the point . . . ."

A transcript of the broadcast counterpart of this would look like this:

SAM:	(TAPE) I remember the last time I saw him.
NARRATOR:	(DOWN) Joe's brother, Sam.
SAM:	(TAPE) We went fishing out on the point . . . .

Like all devices, this one can easily be overused, as it sometimes was on *Biographies in Sound*.

● *Music*

Few, if any, educational stations have a composer and an orchestra available to provide special music for their productions. They usually score them from a few stock recorded bridges or some standard items from the record library.

Under these conditions, the wise writer calls for as little music as possible in his script, and he looks for a string or woodwind quartet, a solo guitar, chimes, or some other alternative to full orchestra, recorded music; these might even be provided live. He might also try writing scripts which call for no music.

"Crime on the Waterfront" used music only briefly as part of the standard opening format of the *Nightmare* series.

Gitlin relied on narrative transitions, and when he showed how various New York authorities passed the buck of responsibility for waterfront conditions, he took

the hoot of a harbor boat's whistle and used it to bind the sequence together. Because it was an organic part of the program's subject, the boat whistle was more effective than music would have been.

● *Revising*

When the script is finished, the writer returns to the original tapes of raw material. Critically, he reads through his script and listens closely to each tape segment picked for inclusion. Then he revises (probably) and listens again, repeating the process until he is as satisfied as he is ever likely to be with what he has prepared.

TAPE EDITING

Editing the original tapes to extract and arrange the material to be used on the air is a simple process. It should be a highly creative process, with special attention given to such niceties as retaining each interviewee's normal speech rhythms. Carelessly edited tapes have spoiled many broadcasts.

The basic technique of cutting and splicing tape is too familiar for me to be able to add anything of value to it. Every tape editor has his own tricks and methods. He might find some new wrinkles on the process, however, in the chapter on editing and splicing in *Elements of Magnetic Tape Recording* by N. M. Haynes (Prentice-Hall, 1957). A pair of the nonmagnetic editing scissors made in Germany are a valuable addition to the standard editing equipment.

PRODUCING THE PROGRAM

When everything else is ready, there are two methods to choose from in producing the show.

The first method consists of recording all of the studio portions of the script — narration, music, dramatic bits, and so on — on a blank tape. The cuts from the interview tapes are then spliced into the proper places in the studio tape.

This may seem the easiest and best method of proceeding. It presupposes, however, that the volume levels of both the studio and the inserted material are the same. In my experience, this is extremely difficult to achieve satisfactorily, and most programs produced this way have annoying variations in level. There are other drawbacks to this technique, too. It prevents the overlapping of taped material and studio material, such as was done in the sequence already described from "Crime on the Waterfront." It also makes timing inflexible and makes it impossible to do the studio portions of the program live.

The second method eliminates these problems, but it requires more advance preparation for producing the program than the first method. The preparation consists of editing all of the cuts to be used out of the original tapes. The cuts are arranged on an empty reel in the sequence in which they will be used, with a short length of leader tape between each of the

cuts. As the program is produced, the engineer cues up each cut (he can do it by eye if the leader is arranged appropriately) and plays it in its place.

This method ensures consistent levels throughout if the playback levels of each cut are set and balanced with the studio portions ahead of time. It permits blending taped cuts with studio-produced material, gives flexible control over timing as the production proceeds and permits doing the studio portions live at air time.

* * *

Establishing purpose, research, interviewing, recording, writing, editing, and production — these are processes which result in a tape documentary. Past failures and the decline of the form occurred, at least in part, because the form looks so simple. It *is* simple, in many ways, but it is also simple to abuse because the real success of a tape documentary depends upon imagination and inventiveness tempered with taste and understanding.

While master control is the most sought-after assignment at KRVM, student operators receive a variety of work experiences in all departments of the station.

How to Get Started in FM Radio—Part II

Staffing and programing

By **Roger J. Houglum**

Manager, KRVM, Eugene (Oregon) Public Schools.

In an article in the November-December, 1960, *Journal* I outlined the steps required in the application for and the subsequent construction of a new educational FM station of 250 watts power or more, listing the various items of technical equipment necessary and their approximate cost. Since our newly constructed station must now be staffed and programed, this companion article will deal largely with these topics, together with some comments on the use of the educational station as a laboratory for vocational training of students for employment in commercial radio and TV stations.

STAFFING THE STATION

Certainly if the licensee of the new station is a school district of moderate size or a college of modest means, it is absolutely essential that the paid operational staff be kept as small as possible consistent with reaching the educational and public-service objectives set forth in the application-for-construction permit. Too large a paid staff may be an invitation for a sweeping budget cut at some future date, and if this were to be too drastic it could endanger the very continuance of the station. On the other hand, if the staff is too small to enable the station to perform an adequate educational and public service there will be eventual dissatisfaction once the original novelty has worn off, and again there is danger of the station's termination.

Based on a daily broadcast schedule of six to eight hours a day, five days a week — which would seem to be the minimum

operation which would justify the capital outlay for an educational station of 250 watts power or more —I think the minimum paid staff would consist of a full-time manager, a full-time program director, a part-time chief engineer, and a part-time secretary.

The station manager's responsibilities include: assuming the responsibility conferred on him by the licensee for the proper operation of the station in accordance with the terms of the station license and the FCC Rules and Regulations, the establishing of station policy, purchasing all supplies and equipment and contracting for all special services, and the proper functioning of all the station's departments such as programing, engineering, and clerical. Normally he will also take an active role in some phase of the station's operation such as program production, engineering, and the training of the student staff.

The program director's responsibilities include: determining, with the counsel of the station manager, the station's over-all program policy for both in-school programs and those directed to the general public, the planning of in-school offerings in careful reference to the existing curriculum, and assisting in the rehearsal and production of all "live" studio programs. The program director of a school-district-owned station would have the additional responsibility of organizing a group of radio coordinators, each representing a school, which would provide information on needs which programs should meet wholly or in part, the degree of program utilization in each building, and the need for program changes and changes in scheduling.

The chief engineer is the person responsible for the technical operation of the station in accordance with the terms set forth in the station license. He must hold at least a Radiotelephone Second Class commercial license (preferably a Radiotelephone First Class) and should have an extensive background in the maintenance and adjustment of technical equipment. To meet FCC requirements the chief engineer must be a full-time employee of the licensee and normally on duty on the station premises or at a location immediately adjacent thereto. At the discretion of the licensee he may perform additional services, such as teaching, provided that this additional employment does not interfere with the discharge of his responsibilities as chief engineer. Normally he will be expected to carry on a systematic program of preventive maintenance of the station's technical equipment, to make emergency repairs, to conduct all equipment tests such as the annual "proof of performance" required by the Commission, and to train staff members in the proper operation of the station's technical equipment. Additionally, if his work schedule permits, he may assist with such other duties as the making of recordings or "standing a watch" at the transmitter.

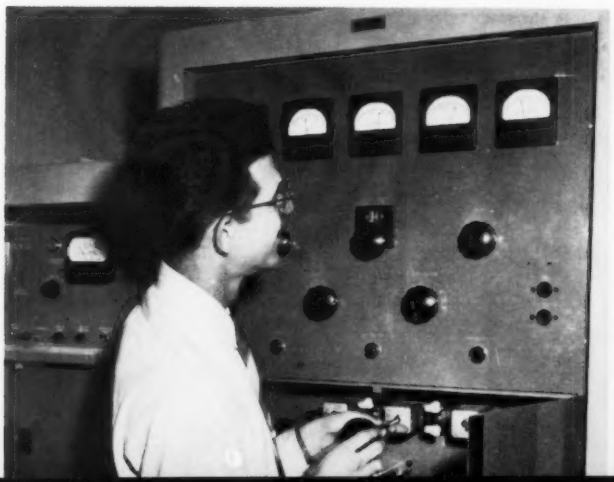
Duties of the part-time secretary include: typing daily program

logs; cutting stencils; cataloging records, tapes, and transcriptions; and handling the station's correspondence.

Already we have made several mentions of the "student staff." With a minimal paid staff as indicated, you will probably need the services of eight to ten full-time students to serve as announcers, control-room engineers, newscasters, and production assistants. Normally the student members of the staff will not be paid, being willing to exchange their services for a learning experience which will prepare them for careers in commercial radio and TV stations.

Some may argue that one cannot operate a truly "professional" educational station with so much reliance placed on student staff members. However, a few quick calculations of the annual cost of a paid staff of professional announcers and operators will convince one of the necessity of operating with a student staff in nearly all cases. In addition to this economic reason there is the equally compelling fact that a real public service is being performed if these young men and women are properly trained for commercial careers in radio and television.

However, they will *not* be properly trained if they are merely assigned under minimal supervision to certain programs or certain segments of the broadcast day. A carefully planned, well-rounded training program is needed which, in addition to air work, will provide daily class work in such instructional areas as vocabulary building, radio programing theory, oral expression, radio writing, FCC rules and regulations governing radio operators, and a survey of the rules of pronunciation for modern European languages. Additionally, those students who plan to take the FCC operator examinations for the Radiotelephone First Class or Second Class commercial license will require daily classroom work in advanced radio and electrical theory plus a weekly seminar in which typical FCC examination questions are discussed and reviewed. Such technically minded



KRVM student operator makes minor transmitter adjustments under the supervision of the chief engineer.

students should also have some shop work in such areas as electronic equipment construction and maintenance, and the use of modern test equipment. At KRVM the course of study for student operators is planned by the station manager, and the various classes meet in the Eugene Technical-Vocational School where the station is located. The station manager and instructors in the school's radio department share these teaching responsibilities.

Each student staff member should hold a Restricted Radiotelephone Operator Permit while in training. This is obtained by "declaration," no examination being required. Write your nearest FCC Field Office for as many copies of FCC Form 753-1 as you require.

I am frequently asked, "Does such a training program really work?" My reply is always to point to the scores of former staff members who now hold key jobs in West Coast radio and TV stations as station managers, sales managers, chief engineers, program directors, "combination men," continuity writers, and even station owners.

Worthy of notice, too, is the fact that many of these graduates of our training program were, at the time they first joined our staff, unhappily working in such pedestrian jobs as shoe salesman, clerk in a grocery store, railroad brakeman, and the like — and would probably be still doing so if our educational station had not offered them an opportunity to improve their economic and social status. And when the public becomes aware of this additional service which the station is providing it will be surprisingly tolerant of the minor "fluffs" and mechanical errors that plague the programs of many educational stations.

Having disposed of the topics of staff organization and the use of the educational station as a laboratory for the vocational training of students, we can turn our attention now to the most important service performed by the station: its programs planned for in-school listening and those for the general public. This is being done with the full realization that such an all-inclusive topic would properly require a separate article for proper development. However, we will confine our discussion to the topics most relevant to the manager of a new educational station.

PROGRAMING

Certainly it should be pointed out that every educational station should be considered a separate entity, reflecting in its programs the particular needs of its particular community, perhaps colored to some degree by the special interests of its staff members. Certainly the manager and program director of a new station would be in serious error if they elected to copy the program schedule of another station simply because it was located in a somewhat similar community or served a similar school district, or because it had been conspicuously successful in serving its community. Program offerings must reflect the unmet educational

needs of your own college or school district, and of your own community, if the station is to have a chance to succeed.

Your first step should be to determine what these unmet needs are and then what program resources you have available to meet them, at least in part. Rather than have such an important decision made by the manager and program director alone it would be preferable to involve more people through the use of the committee approach, with this group being made up largely of classroom teachers at various grade levels and representing as many individual schools as possible. This committee can serve in a dual capacity: It can advise the station staff of program needs and desirable program and schedule changes, and the individual members can apprise their own staff of program changes and advise them as to new programs and as to techniques of making the best utilization of present programs.

Assuming that you have now determined, with the assistance of your committee, the types of programs which will be required, you should examine the program resource materials available in these areas. These will fall into two principal categories, those planned for "direct teaching" and those planned to enrich and supplement the present school curriculum.

A series of programs planned for direct teaching in effect takes over temporarily the role of the classroom teacher in a particular subject area and consequently requires careful correlation with existing curricular offerings and a rather exacting and inflexible broadcast schedule. Extensive manuals for teachers suggesting preparatory and follow-up activities will probably be required.

On the other hand, programs whose principal objective is to enrich and supplement the present curriculum cut across subject matter lines in many cases, offer no great problems in correlation with the curriculum, and are relatively easy to schedule. I believe that for many educational stations this is a neglected field of programing and one which should be considerably expanded.

As to program resource materials, the fine offerings of the NAEB tape network deserve first mention. At KRVM we have found the network's programs in the areas of literature, foreign language, history, and physical science outstanding and particularly suited to our needs. The cost of the network service is well within the means of any educational station.

To this basic schedule we have added six live "master teacher" broadcasts a week in the field of vocal music and four in the field of art, each planned for a specific grade level and backed up by comprehensive teachers' manuals in each field and at each grade level. This basic schedule is then supplemented by additional taped and transcribed programs from a wide variety of sources, obtained at no cost to our station other than that for postage. These include pro-

grams from the information services of Norway, Great Britain, and the Netherlands, from the French Broadcasting System and Canada's CBC. And during sessions of Congress we can look forward to a timely weekly interview with Senators and Representatives airmailed to us from Washington by the AFL-CIO. These and many other program sources are listed in a handy reference titled *Educators Guide to Free Tapes, Scripts, and Transcriptions,* obtainable for $5.75 from Educators Progress Service, Randolph, Wisconsin.

Further tapes dealing with such topics as health and Oregon history are supplied by our state-owned educational station, KOAC. Daily, through the cooperation of one of Eugene's commercial radio stations and a national press service, KRVM receives a number of 5-minute and 15-minute teletype news summaries for the use of our student newscasters.

Since the general public has come to expect an educational station to devote a substantial portion of its broadcast day to programs of classical and semi-classical music, a well-diversified record library is essential. However, outright purchase of 500 or so LP albums might be prohibitively expensive. Fortunately, the major record companies have subscription plans through which they will supply a radio station with a copy of every album which they release during the contract period in such categories as classical and semi-classical and popular. Depending on the record company selected, the annual cost of the classical album service will vary from about $44 to $65 a year, and for the semi-classical and popular album service, about $68 to $75 a year. Usually there is a discount if a station subscribes to two services. Under these contracts you will receive not less than fifty classical albums a year and eighty semi-classical and popular albums — enough to provide a substantial permanent library within a few years. Excellent scripts are provided with some of the classical album subscriptions.

So far, only mention has been made of the scheduling of programs so that the most effective in-school use of broadcasts will be obtained. Unfortunately the scheduling of broadcasts for maximum classroom utilization is a complex problem, but certain basic principles can be outlined which will serve as guideposts: First, if practical, try to schedule every program at least twice during the week. Ten o'clock Monday morning may be an excellent broadcast time in half of your school buildings, but a difficult or impossible listening time in the remainder because of different bell schedules and interfering classroom activities at that particular time on that particular day. Perhaps a Tuesday afternoon repeat broadcast would encounter fewer conflicts. While many educational stations may repeat certain programs four or five times during a week, such repetition can encroach seriously on the available school listening time.

Second, concentrate at first on

meeting the educational needs of the primary and intermediate grades. Since most of these operate as self-contained classrooms with a comparatively flexible schedule, broadcasts can usually be scheduled to produce the minimum conflict with classroom activities. Once you have developed a loyal in-school audience in your elementary schools you can turn your attention to the junior and senior high schools where departmentalization and tight bell schedules make the utilization of radio broadcasts more difficult and, at times, impossible. A senior high teacher who teaches five sections of biology a day may find that there is an excellent science broadcast scheduled which only one section will be able to hear. Rather than give the one section an advantage by permitting it to hear the broadcast, she may decide not to use it at all. This is an extreme case but typical of what can be expected at this grade level. Usually, broadcasts of a supplemental or enrichment type are easier to schedule and use at the secondary level than those of the direct-teaching type.

Third, borrow a leaf from commercial radio practice and use as much "block programing" as possible, scheduling programs of a similar type at the same hour each day of the week. For example, at 1:00 p.m. Monday through Friday one could offer a block of programs made up of such individual offerings as drama, poetry, literature, legends, and stories. This could be followed at 1:15 by another block of local, regional, and national news. Teachers appreciate the convenience of being able to remember daily broadcast schedules in this manner. Result: more classroom listening, better program utilization.

Finally, remember that for maximum program utilization at all grade levels it is important that teachers develop a pattern to their radio listening, planning their classroom work throughout the week so that broadcasts can be listened to without interruption. Once these patterns have been developed, it is very disruptive to have programs suddenly rescheduled for a different hour or day, or cancelled and replaced by new programs. If persisted in, this practice will eventually disillusion even those teachers who have strongly supported radio as an instructional medium.

* * *

Since the major objective of this series of two articles was to stimulate interest in the construction of new educational FM broadcast stations, it is relevant in closing to examine the figures which the FCC has just supplied me regarding such stations:

Total educational FM stations licensed	161
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Number of educational FM stations in 10-watt category	70

Projects and Products

a column by Philip Lewis

Director, Bureau of Instruction Materials
Board of Education, Chicago

Polonium-Activated Record Cleaning Brush

Recently the Atomic Energy Commission pile-produced polonium became available to those manufacturers who qualify and hold valid licenses to utilize this material. Nuclear Products Company was one of the first to be authorized to sell products containing polonium under conditions exempting the customer from the necessity of obtaining a license in order to acquire the product.

The Staticmaster Record Brush offers a most effective answer to the problem of keeping recordings free from lint and dust (Figure 1). The polonium strip contained in the device is the key to the efficiency of the brush. Alpha rays given off by the material travel at a speed of about 10,000 miles per second. However, the range of these particles is short and the travel distance is a little over 1 3/8" in air before their force is dissipated. Alpha particles do not penetrate the skin. In fact, even a piece of cigarette paper will interrupt the high-speed flight.

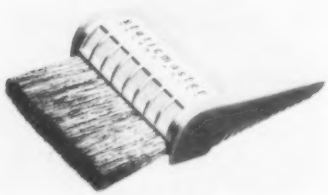


Figure 1

Static electricity occurs whenever the surface of a record is charged with a surplus of either positive or negative charges. Such charges attract and hold dust and lint to the surface of the disc. The alpha rays emitted by the polonium produce ionized air, which consists of an equal number of positive and negative ions. The ionized air acts as a conductor to draw the static electricity away from the surface of the record. Once the surface static has been removed, the soft hair bristles of the Staticmaster Record Brush gently remove the released dust from the microgrooves.

The use of this device to clean valuable records not only results in better tonal qualities, but increases the life of both the records and the pickup stylus. Details of

the brush and available accessories may be obtained by writing to Nuclear Products Company, 10173 Rush Street, El Monte, California.

Personal Public Address Unit

For the first time a completely portable public address system, no taller than a drinking glass and weighing eleven ounces, is available for the person who has frequent occasion to speak to groups numbering up to 100 individuals. This unique device (Figure 2) is encased in Formica, operates on a 9-volt mercury battery and is completely transistorized. The microphone is mounted on a telescoping boom which retracts into the case when not in use. The PPA can be worn comfortably on the person, suspended by a neck ribbon, or it can be set on the speaker's podium. The output of this unit is surprisingly high for its size—a full 1.25 watts. The Personal Public Address amplifier is sold by the J. B. Moore Laboratories, Inc., P. O. Box 606, Opa-locka, Florida.

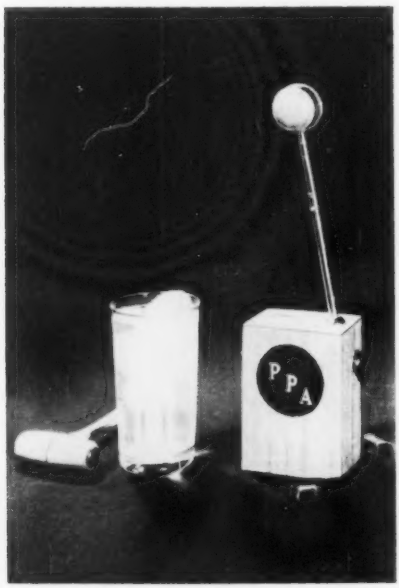


Figure 2

Zenith-Teco-RKO Phonevision Test Proposal To The FCC

In an application filed with the Federal Communications Commission by the Hartford Phonevision Company on June 22, 1960, permission was requested to conduct a three-year test of subscription television over WHCT, Channel 18, Hartford, Connecticut. Hearings before the full FCC panel were held during the week of October 24, 1960, in Washington and the Broadcast Bureau of the Commission recommended the granting of the trial period. The final decision is expected early in 1961.

Applicants propose to broadcast over the air without the use of telephone wires or cable. There will be no commercials on any subscription programs, and in general, the prices for individual features will not exceed the box-office charge for a single admission to the same feature at the theatre, stadium, or concert hall. The cost for the majority of programs for an entire family's viewing will range between $.75 and $1.50. These programs will include most

Class A motion picture features, legitimate theater productions, musical events, sports programs, and others.

Professional programs, such as medical clinics or those on operating-room techniques, are envisioned as being made available on occasion to restricted audiences through special encoding practices. Hartford educators are interested in testing pertinent applications involving credit courses and related activities.

Hartford Phonevision proposes to begin operations as soon as 2,000 decoders (Figure 3) have been installed. This probably could be six months after FCC authorization is obtained. It is estimated that this original number will grow to at least 10,000 installations within the first year, and there are approximately 300,000 homes within the range of WHCT that may ultimately participate in the Phonevision service.

Subscribers will not be required to purchase any decoding equipment. However, an installation charge of from $7.50 to $10 will be made for the connection of this device needed to receive the programs. The decoder is a compact

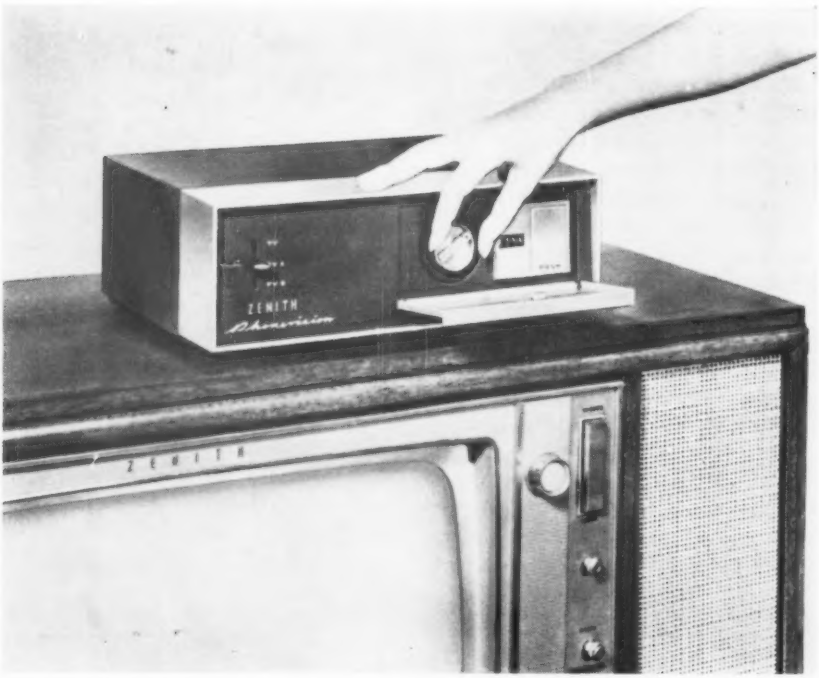


Figure 3

device that can be connected to any TV set regardless of make. There may be a minimum charge, not to exceed $.75 per week, to cover maintenance and depreciation of the decoders.

Initial installations of the decoders at Hartford are planned to be of the "credit" type, with an electronic record made within the decoder of each time it is tuned to a subscription program. At monthly or other intervals, the subscriber would remove a billing tape from the decoder, and forward his payment for programs utilized during the period.

Operation of the decoding device is simple. Subscribers will receive advance notice of programs by newspaper ads or by mail, giving such details as nature of presentation, hour and date, and a special three-digit code number for each program as well as the specific price involved. At the appointed hour for the program he has chosen, the subscriber simply turns on his decoder, sets a selector switch in the proper position and rotates a single dial until the desired code number appears in a small window in front of the unit. The picture and sound on the TV set will then become clear.

During a subscription program, the viewer may switch his set to a commercial program, then back to the subscription program at will and without extra charge. There are no plans at present to use coin-operated decoders in the initial phases of the Hartford operation. During the three-year period, the station's broadcast day would provide for the usual commercial and public service programs to be carried for viewing by conventional receivers as at present, with the subscription periods as added attractions.

Safe Over-The-Floor Wiring

A new concept in extending electrical service to locations not convenient to power outlets is available in a unique product known as Electriduct. This nearly flat rubber casing is available in two forms:

1. Four ready-to-use lengths (4, 5, 6, and 10 feet) with molded plug and cord at one end and a molded double convenience receptacle at the other end (Figure 4).

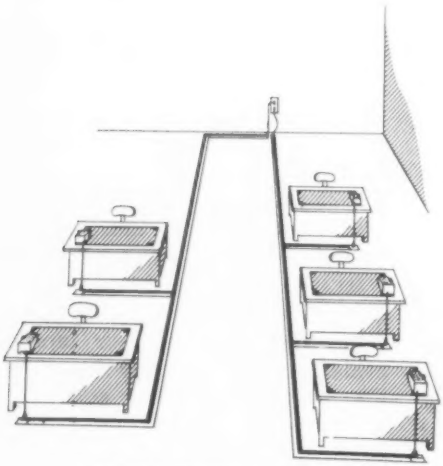
2. Custom distribution system prefabricated to customer's specifications to conform to desk or equipment layout (Figure 5).

The ready-to-use lengths can be plugged in to a convenient outlet and utilized without making a permanent installation. This approach eliminates the tripping hazards present when conventional extension cords are employed for this purpose. If desired, however, a double-coated adhesive tape is available to permanently fasten the Electriduct to the floor surface.

Users can also purchase materials and accessories in different combinations and do the cutting

Figure 4

and cementing locally, if they prefer. The fabricated lengths carry the Underwriters' Laboratories label. Specification and ordering data sheets are available from Electriduct Division, Ideas, Inc., 214 Ivinson Avenue, Laramie, Wyoming.



CUSTOM ELECTRIDUCT SYSTEMS

Figure 5

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Board of Education, Chicago

Polonium-Activated Record Cleaning Brush

Recently the Atomic Energy Commission pile-produced polonium became available to those manufacturers who qualify and hold valid licenses to utilize this material. Nuclear Products Company was one of the first to be authorized to sell products containing polonium under conditions exempting the customer from the necessity of obtaining a license in order to acquire the product.

The Staticmaster Record Brush offers a most effective answer to the problem of keeping recordings free from lint and dust (Figure 1). The polonium strip contained in the device is the key to the efficiency of the brush. Alpha rays given off by the material travel at a speed of about 10,000 miles per second. However, the range of these particles is short and the travel distance is a little over 1 3/8" in air before their force is dissipated. Alpha particles do not penetrate the skin. In fact, even a piece of cigarette paper will interrupt the high-speed flight.

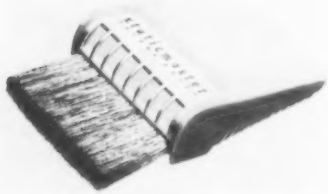


Figure 1

Static electricity occurs whenever the surface of a record is charged with a surplus of either positive or negative charges. Such charges attract and hold dust and lint to the surface of the disc. The alpha rays emitted by the polonium produce ionized air, which consists of an equal number of positive and negative ions. The ionized air acts as a conductor to draw the static electricity away from the surface of the record. Once the surface static has been removed, the soft hair bristles of the Staticmaster Record Brush gently remove the released dust from the microgrooves.

The use of this device to clean valuable records not only results in better tonal qualities, but increases the life of both the records and the pickup stylus. Details of

the brush and available accessories may be obtained by writing to Nuclear Products Company, 10173 Rush Street, El Monte, California.

Personal Public Address Unit

For the first time a completely portable public address system, no taller than a drinking glass and weighing eleven ounces, is available for the person who has frequent occasion to speak to groups numbering up to 100 individuals. This unique device (Figure 2) is encased in Formica, operates on a 9-volt mercury battery and is completely transistorized. The microphone is mounted on a telescoping boom which retracts into the case when not in use. The PPA can be worn comfortably on the person, suspended by a neck ribbon, or it can be set on the speaker's podium. The output of this unit is surprisingly high for its size—a full 1.25 watts. The Personal Public Address amplifier is sold by the J. B. Moore Laboratories, Inc., P. O. Box 606, Opa-locka, Florida.

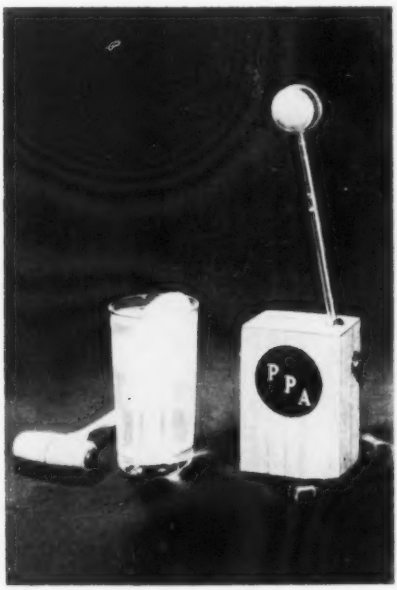


Figure 2

Zenith-Teco-RKO Phonevision Test Proposal To The FCC

In an application filed with the Federal Communications Commission by the Hartford Phonevision Company on June 22, 1960, permission was requested to conduct a three-year test of subscription television over WHCT, Channel 18, Hartford, Connecticut. Hearings before the full FCC panel were held during the week of October 24, 1960, in Washington and the Broadcast Bureau of the Commission recommended the granting of the trial period. The final decision is expected early in 1961.

Applicants propose to broadcast over the air without the use of telephone wires or cable. There will be no commercials on any subscription programs, and in general, the prices for individual features will not exceed the box-office charge for a single admission to the same feature at the theatre, stadium, or concert hall. The cost for the majority of programs for an entire family's viewing will range between $.75 and $1.50. These programs will include most

Class A motion picture features, legitimate theater productions, musical events, sports programs, and others.

Professional programs, such as medical clinics or those on operating-room techniques, are envisioned as being made available on occasion to restricted audiences through special encoding practices. Hartford educators are interested in testing pertinent applications involving credit courses and related activities.

Hartford Phonevision proposes to begin operations as soon as 2,000 decoders (Figure 3) have been installed. This probably could be six months after FCC authorization is obtained. It is estimated that this original number will grow to at least 10,000 installations within the first year, and there are approximately 300,000 homes within the range of WHCT that may ultimately participate in the Phonevision service.

Subscribers will not be required to purchase any decoding equipment. However, an installation charge of from $7.50 to $10 will be made for the connection of this device needed to receive the programs. The decoder is a compact

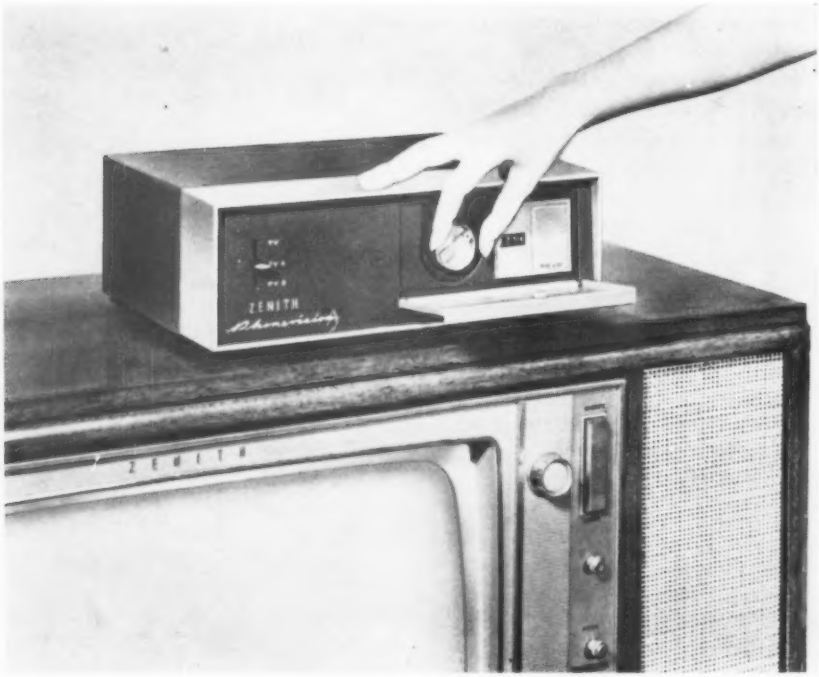


Figure 3

device that can be connected to any TV set regardless of make. There may be a minimum charge, not to exceed $.75 per week, to cover maintenance and depreciation of the decoders.

Initial installations of the decoders at Hartford are planned to be of the "credit" type, with an electronic record made within the decoder of each time it is tuned to a subscription program. At monthly or other intervals, the subscriber would remove a billing tape from the decoder, and forward his payment for programs utilized during the period.

Operation of the decoding device is simple. Subscribers will receive advance notice of programs by newspaper ads or by mail, giving such details as nature of presentation, hour and date, and a special three-digit code number for each program as well as the specific price involved. At the appointed hour for the program he has chosen, the subscriber simply turns on his decoder, sets a selector switch in the proper position and rotates a single dial until the desired code number appears in a small window in front of the unit. The picture and sound on the TV set will then become clear.

During a subscription program, the viewer may switch his set to a commercial program, then back to the subscription program at will and without extra charge. There are no plans at present to use coin-operated decoders in the initial phases of the Hartford operation. During the three-year period, the station's broadcast day would provide for the usual commercial and public service programs to be carried for viewing by conventional receivers as at present, with the subscription periods as added attractions.

Safe Over-The-Floor Wiring

A new concept in extending electrical service to locations not convenient to power outlets is available in a unique product known as Electriduct. This nearly flat rubber casing is available in two forms:

1. Four ready-to-use lengths (4, 5, 6, and 10 feet) with molded plug and cord at one end and a molded double convenience receptacle at the other end (Figure 4).

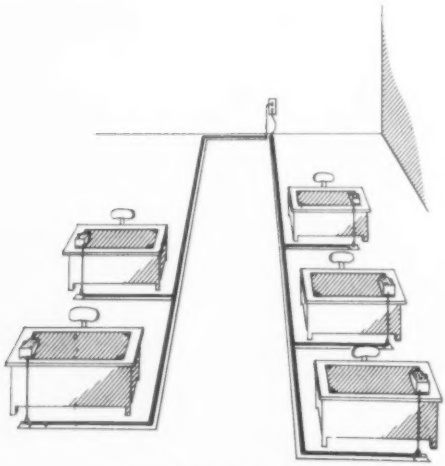
2. Custom distribution system prefabricated to customer's specifications to conform to desk or equipment layout (Figure 5).

The ready-to-use lengths can be plugged in to a convenient outlet and utilized without making a permanent installation. This approach eliminates the tripping hazards present when conventional extension cords are employed for this purpose. If desired, however, a double-coated adhesive tape is available to permanently fasten the Electriduct to the floor surface.

Users can also purchase materials and accessories in different combinations and do the cutting

Figure 4

and cementing locally, if they prefer. The fabricated lengths carry the Underwriters' Laboratories label. Specification and ordering data sheets are available from Electriduct Division, Ideas, Inc., 214 Ivinson Avenue, Laramie, Wyoming.



CUSTOM ELECTRIDUCT SYSTEMS

Figure 5

NAEB

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Chronological Index
by Series and Number
Through December 1960

SERIES I: The Effectiveness of Television as a Teaching Tool

1. An Evaluation of the Effectiveness of Instruction and Audience Reaction to Programming on an Educational Television Station.
2. Effectiveness of Television in Teaching Home Nursing.
3. The Comparative Effectiveness of Instruction by Television, Television Recordings, and Conventional Classroom Procedure.
4. Training by Television: A Study in Learning and Retention.
5. Quartermaster Training Command Educational Television Study.
6. Effectiveness of Television in Teaching Sewing Practices.
7. Television in Army Training.
8. Learning from Kinescopes and Films.
9. Make a Dress—TV!
10. Television Versus Classroom for Learning General Psychology.
11. Mass Media and Learning — an Experiment.
12. Liking and Retention of a Simulcast.
13. Educational Television Programs and Evaluations, 1954-55.
14. Relative Effectiveness of Verbal Introductions to Kinescope Recordings and Training Films.
15. An Investigation of Closed-Circuit Television for Teaching University Courses.
16. Reprint of a Review of *The American Psychologist* as Distributed with the *NAEB Newsletter* of December, 1955.

17. Increased Productivity Made Possible by Television in Extension Work.
18. Penn State TV Research Project (1955).
19. Learning and Attitude Changes Resulting from Viewing a Television Series, "Bon Voyage."
20. Television as a Training and Educational Medium.
21. Experimental Study in Instructional Procedures.
22. A Study of Teaching by TV Under Two Conditions.
23. Experiments in Instruction by Closed-Circuit Television.
24. An Investigation of Television Teaching.
25. The Schenectady Experiment.
26. Teaching Typewriting Through Television.
27. Television at Evanston Township High School.
28. A Study of the Effectiveness of Television as a Medium of Instruction in High School Chemistry.
29. TV and the Crisis in Education.
30. Closed-Circuit Television as a Medium of Instruction.
31. Teaching Algebra and Physics by Means of Television.
32. School Television in Canada.
33. A Brief Report and Evaluation of Closed-Circuit Television Instruction in Mechanical Engineering 360 and Physics 230/240.
34. An Experimental Study in Instructional Procedures. Report #2, Miami of Ohio.
35. TV—Technological Revolution in Education?
36. Relationship of Teaching Effectiveness to Class Size.
37. Audio-Visual Aids and Chemistry at Purdue (Final Report).
38. Teaching by the Discussion Method.
39. ETV and Palm Beach County.
40. TV in Washington County Schools, Hagerstown, Maryland.
41. TV in Army Training (Minimal TV Experiment).
42. ETV at Idaho State College.
43. A Foundation Looks at College Teaching by Television.
44. A College English Teacher Looks at Television: Composition.
45. Does Lack of Contact with the Lecturer Handicap Televised Instruction?
46. The Application of Television and Kinescope Recordings to Reduce Instructor and Student Training Time and Training Costs.
47. Project Number One: An Experimental Study of College Instruction Using Broadcast Television.
48. Report on Some Uses of ETV in Fifteen School Systems of the United States.
49. Report of the National Experiment of Televised Teaching in Large Classes.
50. An Evaluation of Televised Instruction in College English Composition.
51. Annual Report of the Philadelphia Public Schools.
52. Status Report on the Chicago City Junior College.
53. The Chicago City Junior College Experiment in Offering College Courses for Credit via Open-Circuit Television.

54. An Adventure in Educational Television: A Report on "Asia in Ferment."
55. Teaching by Television in the Army—an Overview.
56. A Survey of Educational Television.
57. The Detroit Television Teaching Project: Report for the Year 1957-58.
58. Television: Its Effectiveness in Ninth-Grade Science Teaching.
59. Teacher A-V Education via Closed-Circuit Television.
60. Experiments in Teaching Effectiveness Applied to Introductory Sociology.
61. Evaluation Report for the 1957-58 School Year.
62. Television Teaching: Conventional Lecture versus Highly Visualized Film Presentation.
63. An Evaluation of Televised Instruction in College Freshman Mathematics.
64. The Effectiveness of Laboratory Instruction in Strength of Materials by Closed-Circuit Television.
65. The National Program in the Use of Television in the Public Schools: A Report on the First Year, 1957-58.
66. The Effectiveness of the New York State Educational TV Project: September-December, 1958.
67. The Nebraska In-School Television-Correspondence Study Program: A Progress Report for 1957-58.
68. Communication Skills: An Experiment in Instructional Methods.
69. Final Report on the 1958 Summer Television Project: College-Preparatory English and Mathematics.
70. A Brief Study of Televised Laboratory Instruction.
71. Comparative Teaching Effectiveness of Radio and Television.
72. The Chicago City Junior College Experiment in Offering College Courses for Credit via Open-Circuit Television: A Report of the Second Year of a Three-Year Project.
73. An Evaluation of the Experimentation in Classroom Instruction via Television.
74. An Experimental Study of the Relative Effectiveness of Television Presentational Techniques and Conventional Classroom Procedures in Promoting Initial Comprehension of Basic Verb Form Concepts in Elementary Spanish.
75. An Experimental Study of College Instruction Using Broadcast Television.
76. A Study of Certain Factors that Influence the Use of Radio Broadcasts and Recordings in Public School Classrooms.
77. Second Report of the National Experiment of Television Teaching in Large Classes.
78. Teaching the Use of the Slide Rule via Television.
79. The Milwaukee Experiment in Instructional Television: The Evaluation Report for the 1958-59 School Year.
80. The Norfolk City Experiment in Instructional Television: The Evaluation Report for the 1958-1959 School Year.

81. Closed-Circuit Television: Teaching in Washington County 1958-1959, a Progress Report.
82. Reaction of High School Students to Television Teachers.
83. Television Research in the Teaching-Learning Process.
84. The Milwaukee Experiment in Instructional Television: Evaluation Report.
85. The North Carolina In-School Television Experiment, 1958-59.
86. Experimental Study in Instructional Procedures.
87. An Investigation of Closed-Circuit Television for Teaching University Courses.

SERIES II: **Production Principles**

1. Visual Principles for Training by Television.
2. Survey of Television Utilization in Army Training.
3. Film Production Principles — the Subject of Research.
4. The Relative Effectiveness of the Lecture, Interview and Discussion Methods of Presenting Factual Information by TV.
5. Excerpts of TV and Radio Studies from the *Journal* of the AERT (November, 1955).
6. Reprint from *NAEB Newsletter* of February, 1956: BBC Further Education Experiment.
7. Factors Leading to Effective Television Instruction.
8. Procedures for Improving Television Instruction.
9. Combined Radio and Television Uses in Educational Broadcasts.
10. Closed-Circuit Television Project Notes.
11. An Experimental Study of the Acquisition of Information from Three Types of Recorded Television Presentations.
12. Closed-Circuit Television in Engineering Education.
13. Closed-Circuit Television.
14. The Training of Teachers to Teach on TV.
15. Teaching by Television.
16. A. A. C. T. E. Workshops on Closed-Circuit TV and Teacher Preparation.
17. Application of Sound Motion Pictures to Research in Clinical Psychology.
18. Open-Circuit Television and Adult Education.
19. Cost Estimates and Comparisons for Televised and Conventional Instruction.

SERIES III: **Bibliography**

1. Television Research: An Annotated Bibliography.
2. Some Findings from Television Studies.
3. Suggested References in Educational Television.
4. Television and Education: A Review of Research.
5. Present Status of Signal Corps Television Research.
6. Survey of Educational Television Programs over Commercial Stations: School Year 1955-56.

7. Closed-Circuit Television Installations in Teacher Education Institutions.
8. ETV Research Findings: An Annotated Bibliography.
9. Alabama ETV Commission Survey.
10. Future Trends in TV Teaching and Research.
11. Closed-Circuit Television Installations in Educational Institutions.
12. Closed-Circuit Television in A. A. C. T. E. Member Institutions (American Association of Colleges for Teacher Education).
13. Educational Television Program Survey No. 581.
14. Telecourses for Credit.

SERIES IV: **Audience Studies**

1. Television Sets, Reception, and Viewing in Lansing and Vicinity.
2. Report of Television Radio Activities, October 1953-June 1954. (Philadelphia Public Schools).
3. Omnibus — Unique Experiment in TV Programming.
4. Telecourses: Preliminary Reports (March 1955).
5. In-School Uses of TV: Preliminary Reports (March 1955).
6. Miscellaneous Related Data.
7. Content Preferences in Television.
8. Exploring Problem Areas in Educational Television: Attitudes.
9. Radio Listening Patterns in a Canadian Community . . . "Before" Television.
10. Benchmark Television — Radio Study, Part I: Lansing.
11. An Audience Research Report—BBC.
12. The WQED Audience Study.
13. Audience for ETV.
14. Stanford Audience Study of San Francisco Area.
15. KUOM: Minnesota Radio School Audience Study.
16. KUON: Audience Study for ETV in Nebraska.
17. Demographic and Psychological Character of ETV Audiences.
18. A Study of the Educational Television Viewer in the Area of Lincoln, Nebraska.
19. Seasonal Listening Patterns, Composition and Size of Summer and Winter Radio Audiences.
20. Selective Perception in Viewing a Television Broadcast (in Great Britain).
21. Audience Reaction to *Preview* and Morning Listening Habits in Ottawa (CBC).
22. Preliminary Report of a Comparative Study of Personal Influence Exerted in Selected Content Areas by the Audience of an Educational FM Radio Station.
23. TV Producers' Competence in Predicting Audience Reactions to a Television Program.
24. Program Statistical Analysis Report.
25. Educational Television — a Good Competitor?
26. New Developments in Audience Research Methods.

27. "Books and Ideas" — the Impact of an ETV Program on Its Audience.
28. The Group Interview as an Audience Reaction Measure.
29. A Qualitative Analysis of the Audience of FM Radio Station WFMT.
30. FM Broadcast Receivers in Los Angeles.
31. FM Radio Receivers Study Conducted for WLDM, Detroit.
32. Stereophonic Broadcasting — A Survey of Listener Reaction in Toronto.
33. Radio and Television Listening and Reading Habits of Children in Monongalia County, West Virginia.
34. Audience Survey #1 — Television Seminar Project.
35. Deception in Television: The Standards of a State University Staff.

SERIES V: Content

1. Broadcast Services of WOI-AM-FM-TV in a Sample Week.
2. Program Survey — ETV Stations (June 1957).
3. The Perceived Appeals of TV Program Content.
4. Report on NAEB Study Group from October, 1957, Convention.
5. Attitudes Toward Educational Television.
6. An Instructional Utility Analysis of 319 Educational Television Programs.
7. Perceptions of the Role of Educational Television by ETV Station Personnel and Community Leaders.
8. Mental Illness on Television: A Study of Censorship.

SERIES VI: Impact

1. Television: Its Impact on School Children.
2. A Sociological Approach to Communication Research.
3. A Report on the Impact of Television in a Major Metropolitan Market.
4. The Social Impact of Television on Atlanta Households.
5. The Television-Radio Audience and Religion.
6. The Effects of Television Upon the Interests and the Initiative of Adult Viewers.
7. A Pre-Broadcast Study of the Ideas and Attitudes of the "Target" Audience for a Projected Television Series on "Mental Health."
8. The "Hurt Mind" Study, BBC.
9. Television Effects: A Summary of the Literature and Proposed General Theory.
10. Attitude Change and Learning as a Function of Prestige of Instructor and Mode of Presentation.
11. An Investigation of Some Aspects of the Social Psychological Impact of an Educational Television Program.
12. Television and the Child.
13. The Effect of Television on Cinema Going.
14. Crime and Violence on Television.

15. An Examination of the Differential Effects on Viewers of Experience in Taking Telecourses on Attitudes Toward Instruction by Television and the Social Psychological Impact of a Controversial Educational Television Program.

SERIES VII: Administrative and Faculty Reactions to Educational Television and Radio

1. The Role of Television in Higher Education as Seen by College and University Presidents.
2. Attitudes of Members of a University Faculty Toward the Operation of a University-Owned Television Station.
3. Superintendents' View of TV and Its Educational Potential.
4. Television and the Classroom Teacher.
5. A Survey of Policies and Procedure for Selection, Administration, Production and Evaluation of Formal Adult Instruction for College Credit by TV.
6. A. A. C. T. E. Bulletins Nos. 2-5.
7. Appraisal of the Current Status of Television as a Medium of Instruction.
8. Closed-Circuit TV in Teacher Education.
9. College Teachers' Attitudes Toward Closed-Circuit TV Instruction.
10. Evaluating Instructional Films by Television.
11. Hope and Fulfillment in ETV Research.
12. A Study of Load Credit for TV Teaching.
13. An Evaluation of the Ohio School of the Air.
14. More Adventures in Television.
15. Teacher Reactions to 1958-1959 ETRA-KQED Instructional Television Project.

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